STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

VIA ELECTRONIC MAIL

January 7, 2019

Ryan Bailey
Cherundolo Consulting
1280 Route 46 West, Suite 9
Parsippany, NJ 07054

RE: **EM-SPRINT-018-181121** – Sprint notice of intent to modify an existing telecommunications facility located at 37 Carmen Hill Road, Brookfield, Connecticut.

Dear Mr. Bailey:

The Connecticut Siting Council (Council) is in receipt of your correspondence of January 2, 2019 submitted in response to the Council's November 26, 2018 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/FOC/emr

S:\EMS_TS\1_BYTOWN\Brookfield\CarmenHillRd\SPRINT\em-sprint-018-181121_responseandacknowledgement_carmenhillrd.docx

Robidoux, Evan

From: Ryan Bailey <ryan@mackenzierealtyconsulting.com>
Sent: Wednesday, January 02, 2019 3:35 PM
To: Robidoux, Evan
Cc: CSC-DL Siting Council; Ryan Bailey
Subject: RE: Council Extension Letter for EM-SPRINT-018-181121-CarmenHilLRoad-Brookfield
Attachments: CT72XC033_DO Macro Upgrade_Structural Analysis-Pass wMods.12.12.2018.pdf

Attached please find a revised structural per the Council's request. Please let me know if you need me to send hard copies.

Thank you

Ryan Bailey
Mackenzie Realty Consulting
3B Prospect Pl
Madison NJ 07940
856-625-1596
973-215-2940 Fax
ryan@mackenzierealtyconsulting.com

From: Robidoux, Evan
Sent: Tuesday, December 4, 2018 3:33 PM
To: Ryan Bailey
Cc: CSC-DL Siting Council
Subject: Council Extension Letter for EM-SPRINT-018-181121-CarmenHilLRoad-Brookfield

Please see the attached correspondence.

Evan Robidoux
Clerk Typist
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED

December 12, 2018

Tom Jupin
Charles Cherundolo Consulting, Inc.
1280 Rt. 46 West
Parsippany, NJ 07054

Ramaker & Associates, Inc.
855 Community Drive
Sauk City, WI 53583

SUBJECT: **STRUCTURAL ASSESSMENT**
495-FOOT GUYED TOWER

CARRIER: **SPRINT**

SITE: **CT72XC033**
39 CARMEN HILL ROAD
BROOKFIELD, FAIRFIELD COUNTY, CONNECTICUT 06804
RAMAKER & ASSOCIATES PROJECT NUMBER: 28758

RESULTS:	**TOWER:**	**96.5%**	**PASS WITH MODIFICATIONS**
	FOUNDATION:	**31.3%**	**PASS**
	MOUNT:		**PASS**

Dear Tom Jupin:

Ramaker & Associates, Inc. (RAMAKER) respectfully submits this structural assessment for the above-mentioned site. The purpose of this report is to determine the structural integrity of the existing structure with the existing and proposed loading. Engineering recommendations regarding the analysis results are provided in the following pages.

RAMAKER developed a finite element model of the tower using tnxTower analysis software. All information contained herein is valid only for the described structure configuration and loading conditions. RAMAKER reserves the right to modify our recommendations should alterations to the tower loading occur.

If you have any questions or comments, please do not hesitate to contact our office.

Sincerely,

RAMAKER & ASSOCIATES, INC.

Thomas E. Moore
Project Engineer

James R. Skowronski, P.E.
Supervising Engineer

STATE OF CONNECTICUT
JAMES R. SKOWRONSKI
26266
LICENSED
PROFESSIONAL ENGINEER

ANALYSIS CRITERIA

State Building Code	2018 CT State Building Code
Adopted Building Code	2015 IBC
Referenced Standard	TIA-222-G
Risk Category	II
Ultimate Design Wind Speed, V_{ult}	120 mph (3 sec. gust)
Nominal Design Wind Speed, V_{asd}	93 mph (3 sec. gust)
Design Wind Speed w/ Ice	50 mph (3 sec. gust)
Ice Thickness	3/4 inch
Exposure Category	C
Topographic Feature	Continuous Ridge

SUPPORTING DOCUMENTATION

- Mount analysis by RAMAKER, job number 28758, dated 7/24/18
- Geotechnical report by Tower Engineering Professionals, Inc., job number 131593.96741, dated 2/5/18
- Foundation mapping by Tower Engineering Professionals, Inc., job number 131593.155155, dated 1/29/18
- Structural analysis by Vertical Bridge Engineering, LLC, job number US-CT-5009, dated 9/6/18
- Structural analysis by Stainless, job number 361116, dated 1/25/16
- Tower mapping for KM Consulting Engineers, Inc., dated 2/25/14
- Structural analysis by Ramaker & Associates, job number 28758, 7/16/14
- Structural analysis by Salient Associates, LLC, dated 12/14/12
- Construction drawings by RAMAKER, project number 28758
- Site visit(s) conducted by RAMAKER
- Other pertinent data procured or assumed by RAMAKER during site due diligence activities

TOWER LOADING

RAMAKER understands that the loading to be used for this analysis will consist of the antenna equipment, mount, and cable configurations as shown in the following chart:

Elevation	Appurtenance	Mount	Coax	Owner	Status
479	(1) FM Antenna	Tower	(1) 3	--	Existing
460	(1) Yagi		(1) 7/8		
446	--	Platform w/Handrail	--		
438	(1) Andrew GP6F-21A	Tower Leg	(1) 1 1/4		
353	(1) Andrew P3F-52-N7A	Tower Leg	(1) 5/8		
340	(1) Andrew DB496-A	(1) Standoff	(1) 7/8		
305	(1) 4' Yagi	(1) Standoff	(1) 1 1/4		
280	(3) RFS APX16DWV-16DWVS-A20	(3) T-Arm	(18) 1 5/8 *(1) 1 5/8 Hybrid*	T-Mobile	Existing
	(3) Ericsson KRY 112144				
	(3) Ericsson KRY 112 89-4				
	(3) RFS APXVARR24_43-C-NA20				*Future*
	(3) Ericsson RRUS 4449 B7B12				
257	**(1) RFS APXVSPP18-C-A20**	(1) Sector Frame **(2) SitePro1 VFA12-HD-S Sector Frame**	(1) 1 5/8 **(3) Hybrid**	Sprint	**Remove**
	(3) Nokia AAHC				**Proposed**
	(3) Commscope NNVV-65B-R4				
	(2) ALU 800MHz 2x50W RRH				
	(2) ALU 1900MHz 4x45W RRH				
	(1) ALU 800MHz 2x50W RRH				**Relocate**
	(1) ALU 1900MHz 4x45W RRH				
248	(1) Andrew GP8F-21A	Tower Leg	(1) 7/8	--	Existing
242	(1) Andrew GP8F-21A	Tower Leg	(1) 7/8		
239	(2) Large Beacon	Tower Face			
140	(1) 10' Dipole	(1) Standoff	(1) 7/8		
125	(1) 10' Dipole	(1) Standoff	(1) 7/8		
108	(1) 10' Dipole	(1) Standoff	(1) 7/8		

TOWER RESULTS

The maximum tower member stress capacities under the loading conditions previously described are as follows:

Component Type	Percent Capacity	Pass/Fail
Pole	61.8	Pass
Leg	95.8	Pass
Diagonal	83.8	Pass
Horizontal	33.2	Pass
Guy Pull Off	33.4	Pass
Guy Line	93.1	Pass
Bolt	96.5	Pass
RATING	**96.5**	**PASS**

Results of the analysis show that the modified tower will be stressed to a maximum of 96.5 percent of capacity. Therefore, the modified tower will pass the TIA-222-G analysis requirements under proposed loading conditions.

DISH TWIST/SWAY RESULTS

The twist/sway results for a 60 mph service wind speed are as follows:

Elevation	Dish	Deflection (in)	Tilt (deg)	Twist (deg)
438	Andrew GP6F-21A	9.158	0.1581	0.2711
353	Andrew P3F-52-N7A	6.891	0.0934	0.3463
340	Andrew DB496-A	6.691	0.0835	0.3790
248	Andrew GP8F-21A	5.314	0.1223	0.4656
242	Andrew GP8F-21A	5.164	0.1303	0.4816

MOUNT RESULTS

By engineering calculation and inspection, the ***proposed*** Alpha and Beta sectors antenna and equipment mounting structure(s) are capable of supporting the proposed loading configurations without causing an overstress condition in the antenna and equipment mounting structure(s). ***See the associated RAMAKER construction drawings for the proposed mounting structures.***

By engineering calculation and inspection, the Gamma sector antenna and equipment mounting structure(s) are capable of supporting the proposed loading configurations without causing an overstress condition in the antenna and equipment mounting structures(s).

FOUNDATION RESULTS

The maximum foundation stress capacities are as follows:

Component Type	Percent Capacity	Pass/Fail
Pad & Pier - Soil Interaction	31.3	Pass
Inner Guy Anchor - Soil Interaction	28.5	Pass
Outer Guy Anchor - Soil Interaction	24.9	Pass
RATING	**31.3**	**PASS**

The foundations were analyzed utilizing the foundation drawings and geotechnical report referenced above. Foundation reinforcement was assumed for this structural analysis. Results of the analysis show that the existing foundations will be stressed to a maximum of 31.3 percent of capacity. Therefore, the existing foundations will pass the TIA-222-G analysis requirements under proposed loading conditions.

LIMITATIONS

The recommendations contained within this report were developed using the supporting documentation as previously described. All recommendations pertain only to the proposed antenna installation activities as described in this report. RAMAKER assumes no responsibility for failures caused by factors beyond our control. These include but are not limited to the following:

- Missing, corroding, and/or deteriorating members
- Improper manufacturing and/or construction
- Improper maintenance

RAMAKER assumes no responsibility for modifications completed prior to or hereafter in which RAMAKER was not directly involved. These modifications include but are not limited to the following:

- Replacing or strengthening bracing members
- Reinforcing or extending vertical members
- Installing or removing antenna mounting gates or side arms
- Changing loading configurations

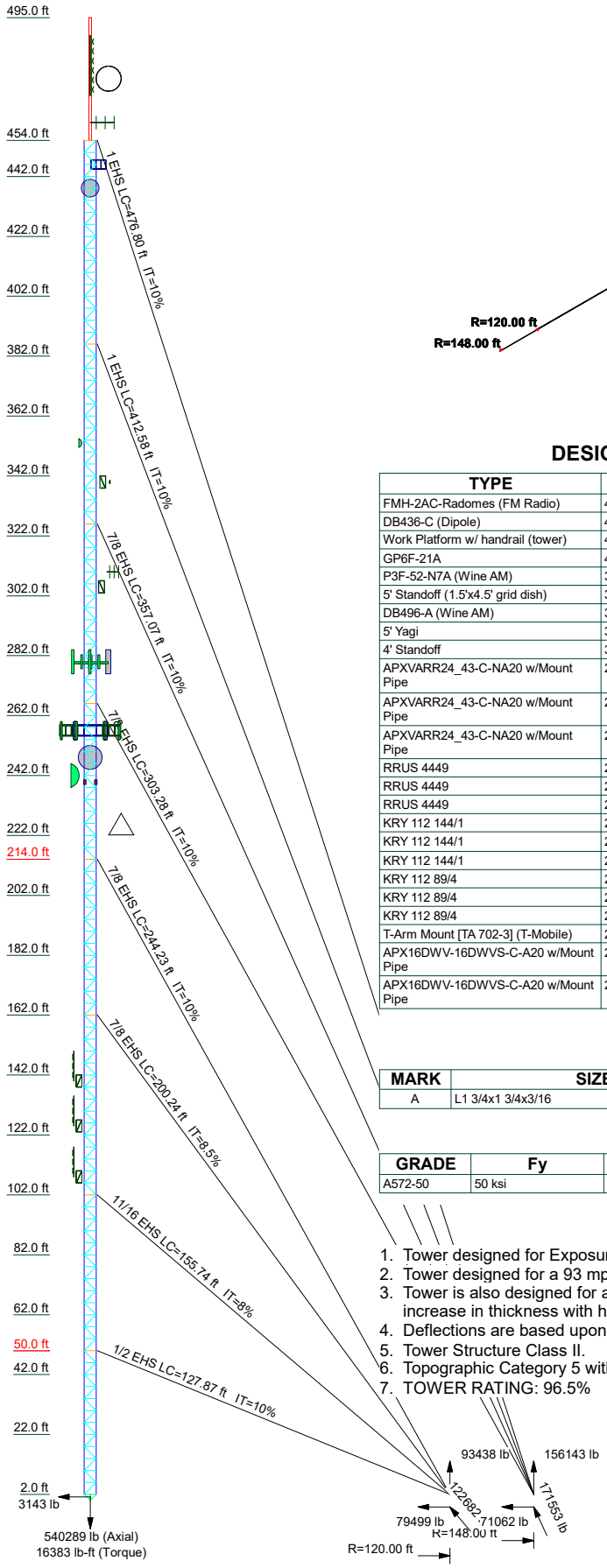
The tower owner is responsible for verifying that the existing loading on the structure is consistent with the loading applied to the structure within this report. If there is any information contrary to that contained herein, or if there are any defects arising from the original design, material, fabrication and erection deficiencies, this report should be disregarded and RAMAKER should be contacted immediately. RAMAKER is not liable for any representation, recommendation, or conclusion not expressly stated herein.

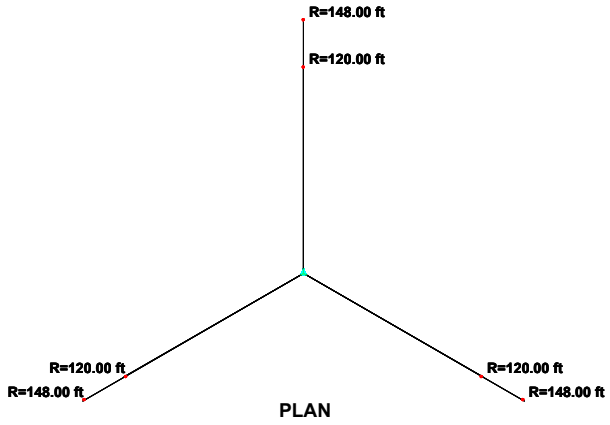
This analysis pertains only to the tower structure, and no analyses or conclusions were made regarding the antenna and equipment mounting structure(s). Analysis and certification of the antenna and equipment mounting structure(s) is performed and submitted separately.

ATTACHMENTS

- Analysis Figures
- Analysis Calculations

Section		L1	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18	T19	T20	T21	T22	T23
Legs		P10x.5	SR 2			SR 2 1/4				SR 2 1/2			SR 2 3/4					SR 3							
Leg Grade		A53-B-35												A572-50											
Diagonals		N.A.	L2x2x3/16			L2x2x1/4	A	L2x2x1/4		B	L2x2x1/4							L2 1/2x2 1/2x3/8							
Diagonal Grade		N.A.	A36			A36				A572-50	A36							A572-50							
Horizontals		N.A.	L2x2x3/16																						
Top Guy Pull-Offs		N.A.	B	N.A.	B	N.A.	N.A.	N.A.	B	N.A.	N.A.	B	N.A.	N.A.	B	N.A.	B	N.A.	B	N.A.	B	N.A.	B	N.A.	B
Face Width (ft)		0.895833	4																						
# Panels @ (ft)		N.A.	113 @ 4																						
Weight (lb)	41771.6	2246.3	637.7	993.8	1164.2	1270.0	1137.1	1228.6	1270.0	1647.7	1419.0	1899.6	1858.2	1858.2	2130.1	2088.7	2088.7	2130.1	2088.7	2088.7	2130.1	2088.7	2130.1	2088.7	2088.7





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
FMH-2AC-Radomes (FM Radio)	479	APX16DWV-16DWVS-C-A20 w/Mount Pipe	280
DB436-C (Dipole)	460	NNVV-65B-R4	257
Work Platform w/ handrail (tower)	446	NNVV-65B-R4	257
GP6F-21A	438	NNVV-65B-R4	257
P3F-52-N7A (Wine AM)	353	1900MHz 4x45W RRH	257
5' Standoff (1.5'x4.5' grid dish)	340	1900MHz 4x45W RRH	257
DB496-A (Wine AM)	340	1900MHz 4x45W RRH	257
5' Yagi	305	800MHz 2x50W RRH	257
4' Standoff	305	800MHz 2x50W RRH	257
APXVARR24_43-C-NA20 w/Mount Pipe	280	800MHz 2x50W RRH	257
APXVARR24_43-C-NA20 w/Mount Pipe	280	(4) 8'x2" Pipe Mount	257
APXVARR24_43-C-NA20 w/Mount Pipe	280	(4) 8'x2" Pipe Mount	257
RRUS 4449	280	Sector Mount [SM 303-1] (Sprint)	257
RRUS 4449	280	SitePro1 VFA12-HD-S (1) (Sprint)	257
RRUS 4449	280	SitePro1 VFA12-HD-S (1) (Sprint)	257
KRY 112 144/1	280	AAHC	257
KRY 112 144/1	280	AAHC	257
KRY 112 144/1	280	AAHC	257
KRY 112 89/4	280	GP8F-21A	248
KRY 112 89/4	280	GP8F-21A	242
KRY 112 89/4	280	Large Beacon	239
T-Arm Mount [TA 702-3] (T-Mobile)	280	Large Beacon	239
APX16DWV-16DWVS-C-A20 w/Mount Pipe	280	4' Standoff	140
APX16DWV-16DWVS-C-A20 w/Mount Pipe	280	10' Dipole	140
		10' Dipole	125
		4' Standoff	125
		4' Standoff	108
		10' Dipole	108

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L1 3/4x1 3/4x3/16	B	L2 1/2x2 1/2x3/8

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower designed for Exposure C to the TIA-222-G Standard.
2. Tower designed for a 93 mph basic wind in accordance with the TIA-222-G Standard.
3. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Structure Class II.
6. Topographic Category 5 with Crest Height of 294.00 ft
7. TOWER RATING: 96.5%

ALL REACTIONS ARE FACTORED

Ramaker & Associates, Inc.
855 Community Drive
Sauk City, WI 53583
Phone: (608) 643-4100
FAX: (608) 643 7999

Job: *CT72XC033-A*			
Project: *28758*			
Client: Sprint	Drawn by: JMA	App'd:	
Code: TIA-222-G	Date: 12/12/18	Scale: NTS	
Path: I:\28700\28758\Structural\tnx\28758 rev4.eri		Dwg No. E-1	

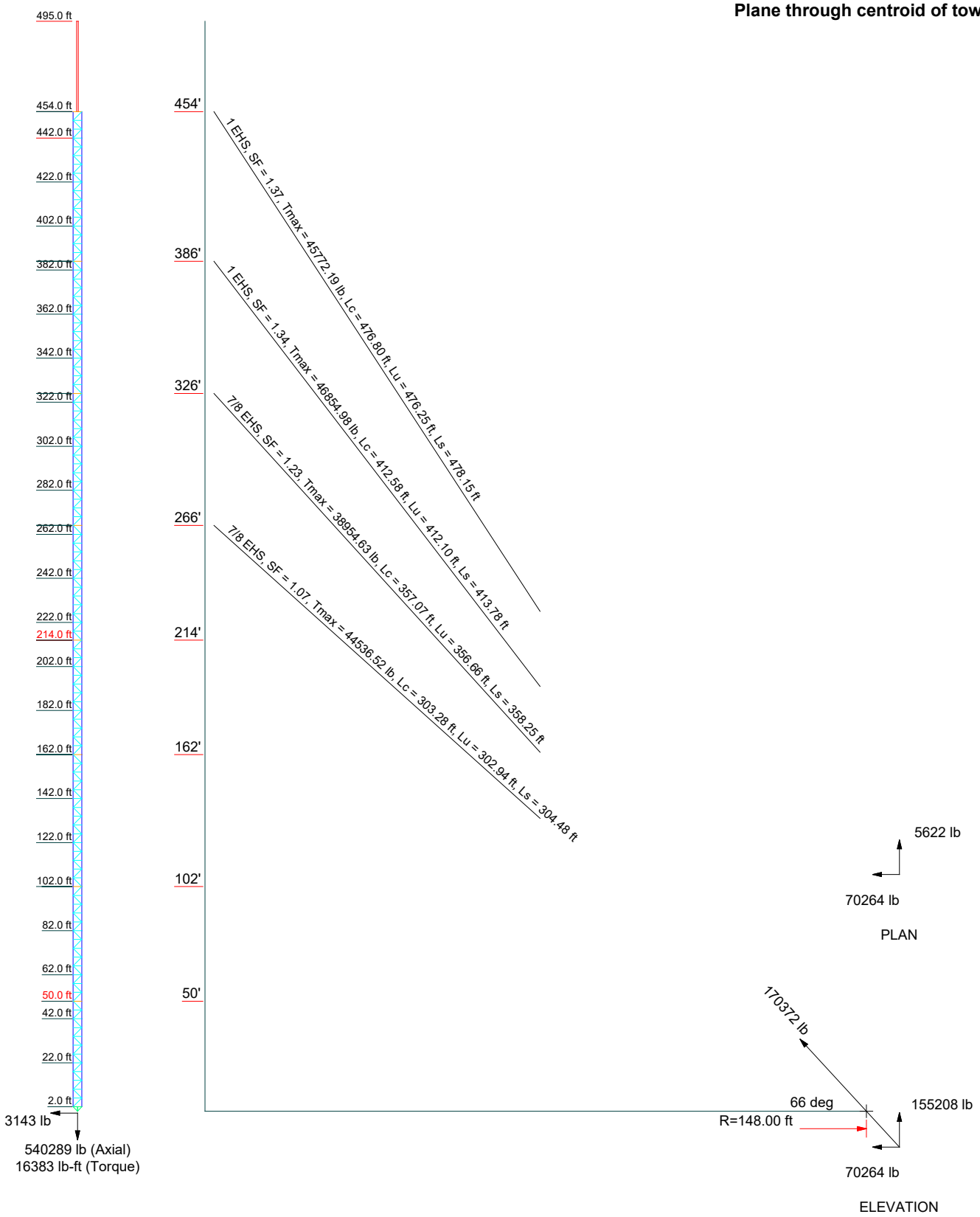
Guy Tensions and Tower Reactions

TIA-222-G - 93 mph/50 mph 0.7500 in Ice Exposure C

Maximum Values

Anchor 'C'@148 ft Azimuth 240 deg Elev 0 ft

Plane through centroid of tower



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Path: I:\28700\28758\Structural\tnx\28758 rev4.eri		Dwg No. E-6	

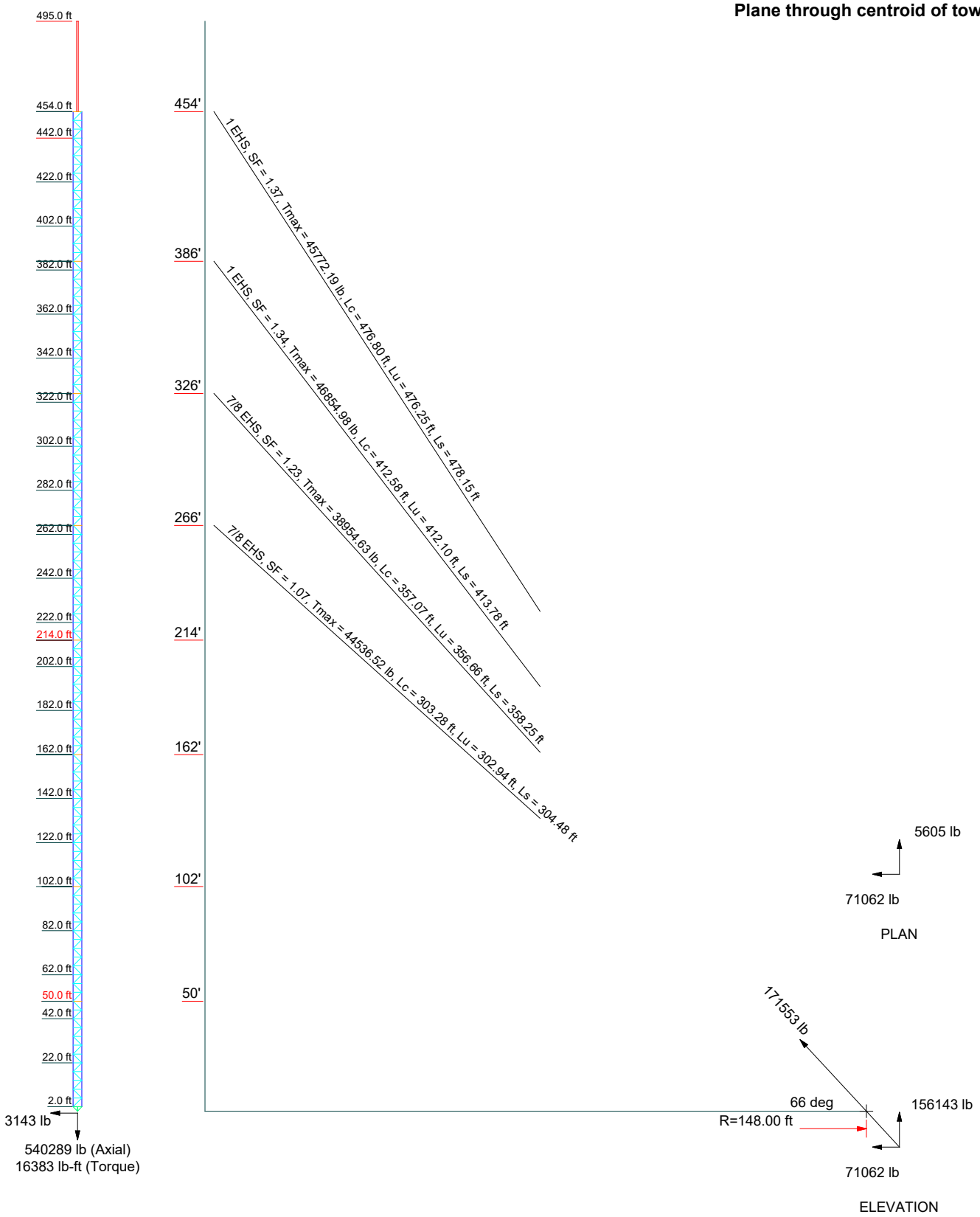
Guy Tensions and Tower Reactions

TIA-222-G - 93 mph/50 mph 0.7500 in Ice Exposure C

Maximum Values

Anchor 'B'@148 ft Azimuth 120 deg Elev 0 ft

Plane through centroid of tower



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Code: TIA-222-G	Date: 12/12/18	Scale: NTS	
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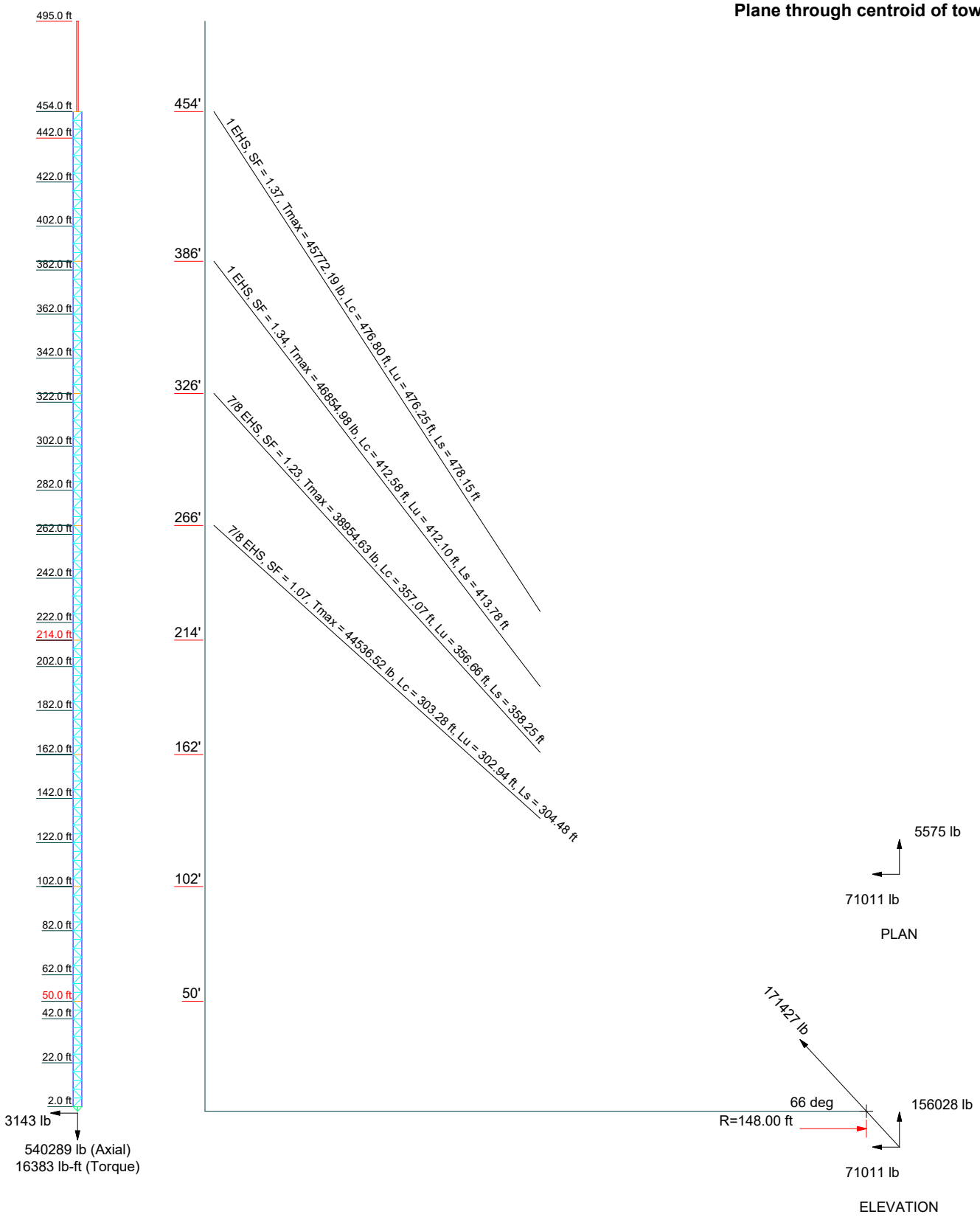
Guy Tensions and Tower Reactions

TIA-222-G - 93 mph/50 mph 0.7500 in Ice Exposure C

Maximum Values

Anchor 'A'@148 ft Azimuth 0 deg Elev 0 ft

Plane through centroid of tower



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Project: ***28758***			
Client: Sprint	Drawn by: JMA	App'd:	
Code: TIA-222-G	Date: 12/12/18	Scale: NTS	
Path: I:\28700\28758\Structural\tnx\28758 rev4.eri		Dwg No. E-6	

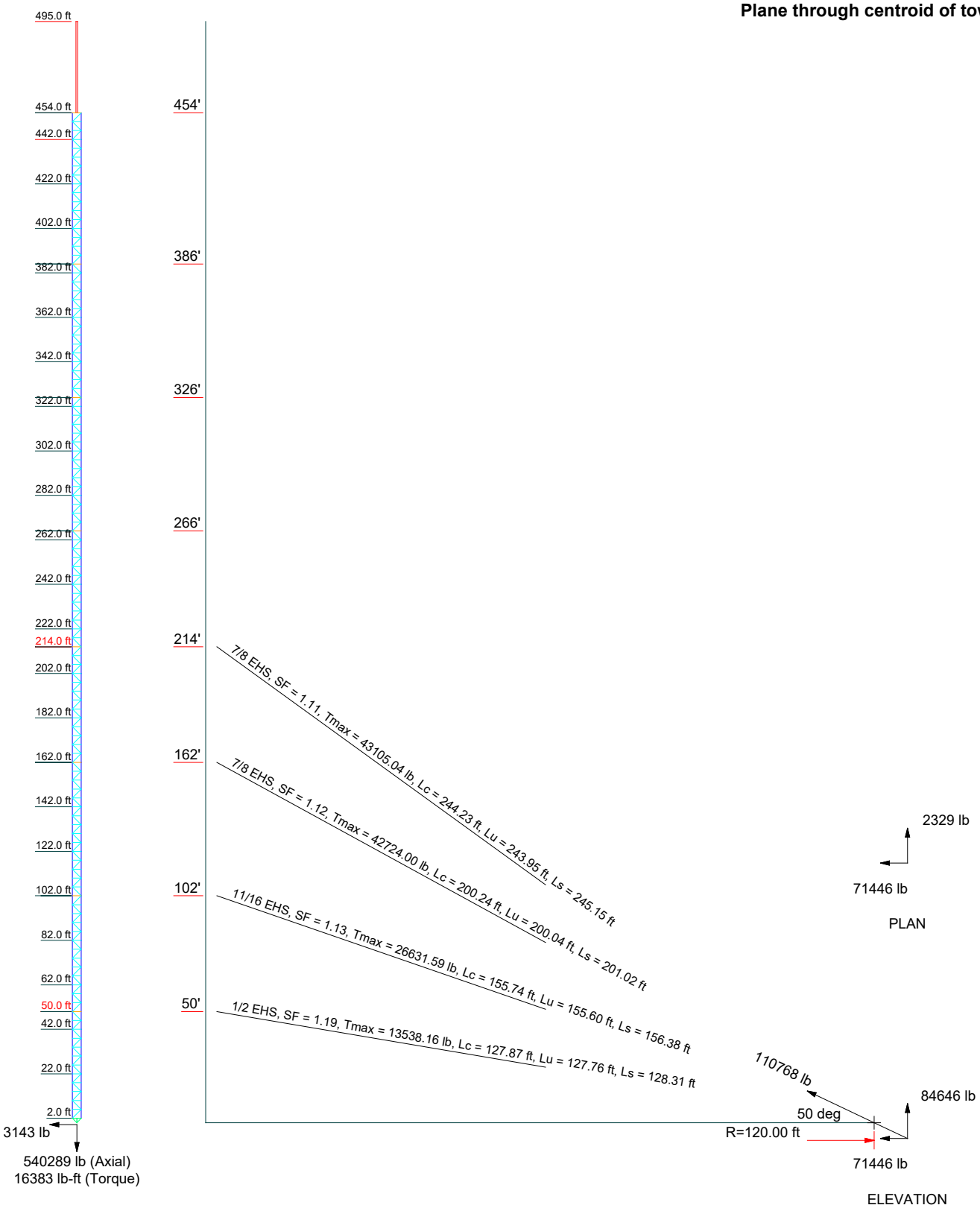
Guy Tensions and Tower Reactions

TIA-222-G - 93 mph/50 mph 0.7500 in Ice Exposure C

Maximum Values

Anchor 'C'@120 ft Azimuth 240 deg Elev 0 ft

Plane through centroid of tower



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Path: I:\28700\28758\Structural\tnx\28758 rev4.eri		Dwg No. E-6	

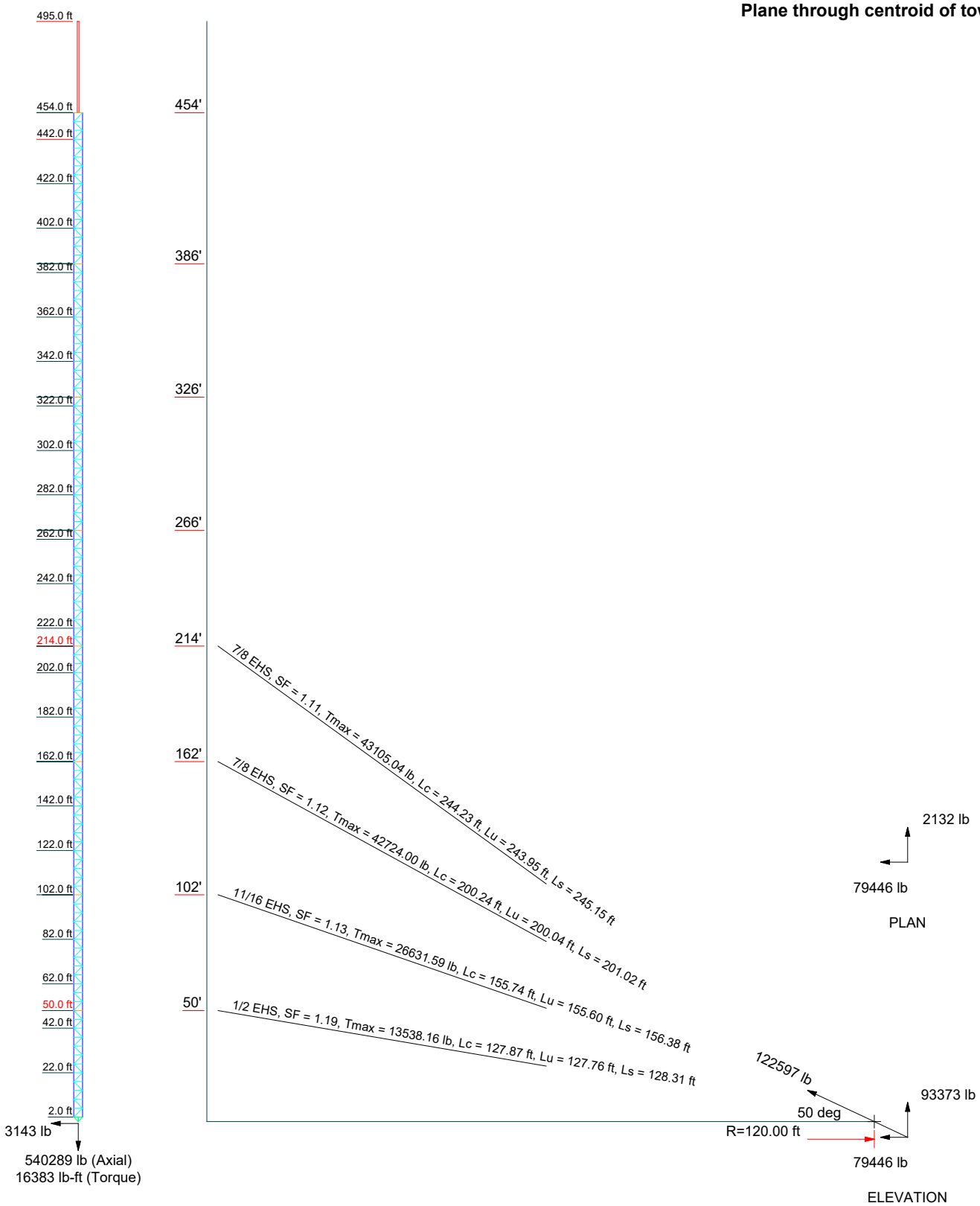
Guy Tensions and Tower Reactions

TIA-222-G - 93 mph/50 mph 0.7500 in Ice Exposure C

Maximum Values

Anchor 'B'@120 ft Azimuth 120 deg Elev 0 ft

Plane through centroid of tower



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Code: TIA-222-G	Date: 12/12/18	Scale: NTS	
Path: I:\28700\28758\Structural\tnx\28758 rev4.eri		Dwg No. E-6	

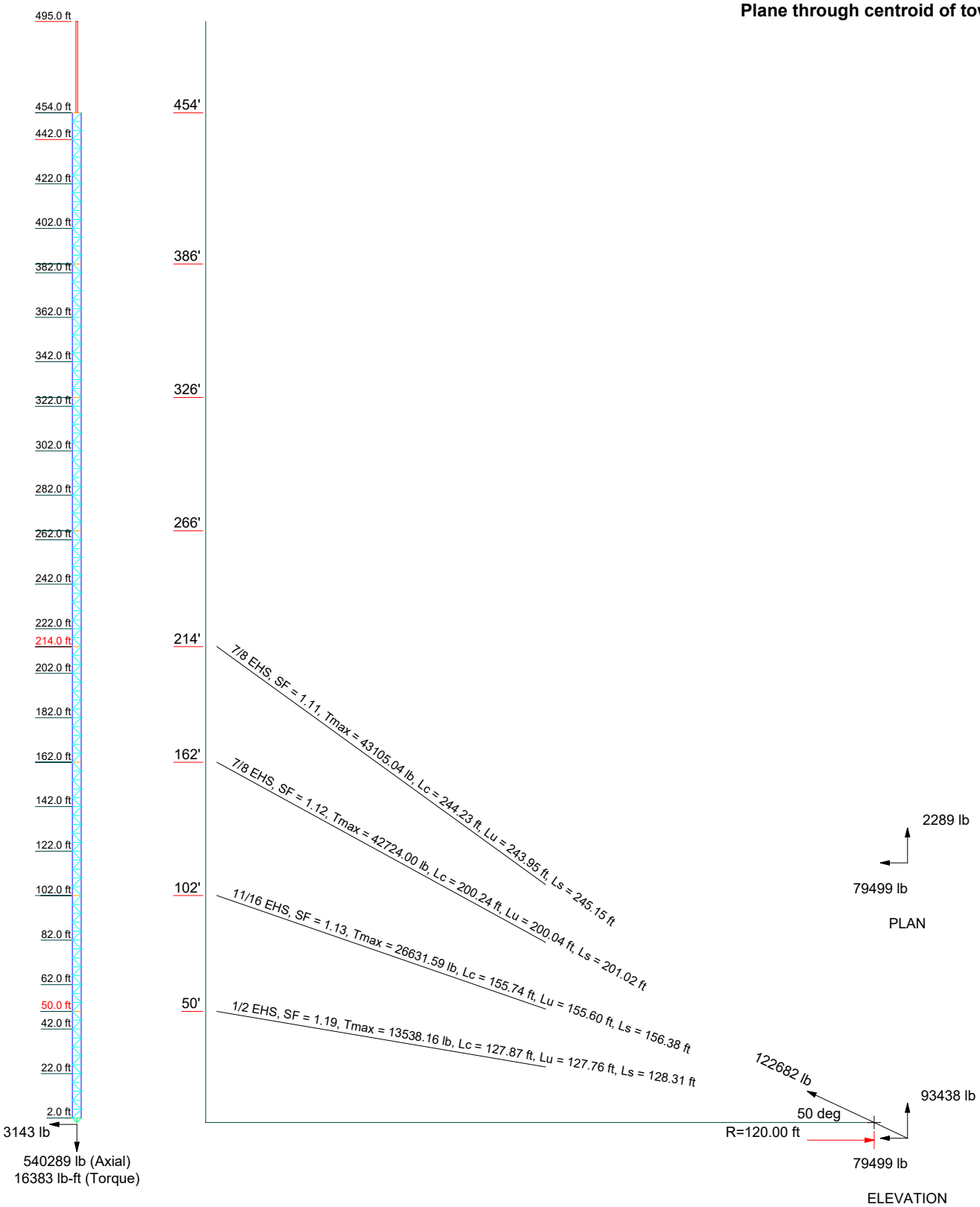
Guy Tensions and Tower Reactions

TIA-222-G - 93 mph/50 mph 0.7500 in Ice Exposure C

Maximum Values

Anchor 'A'@120 ft Azimuth 0 deg Elev 0 ft

Plane through centroid of tower



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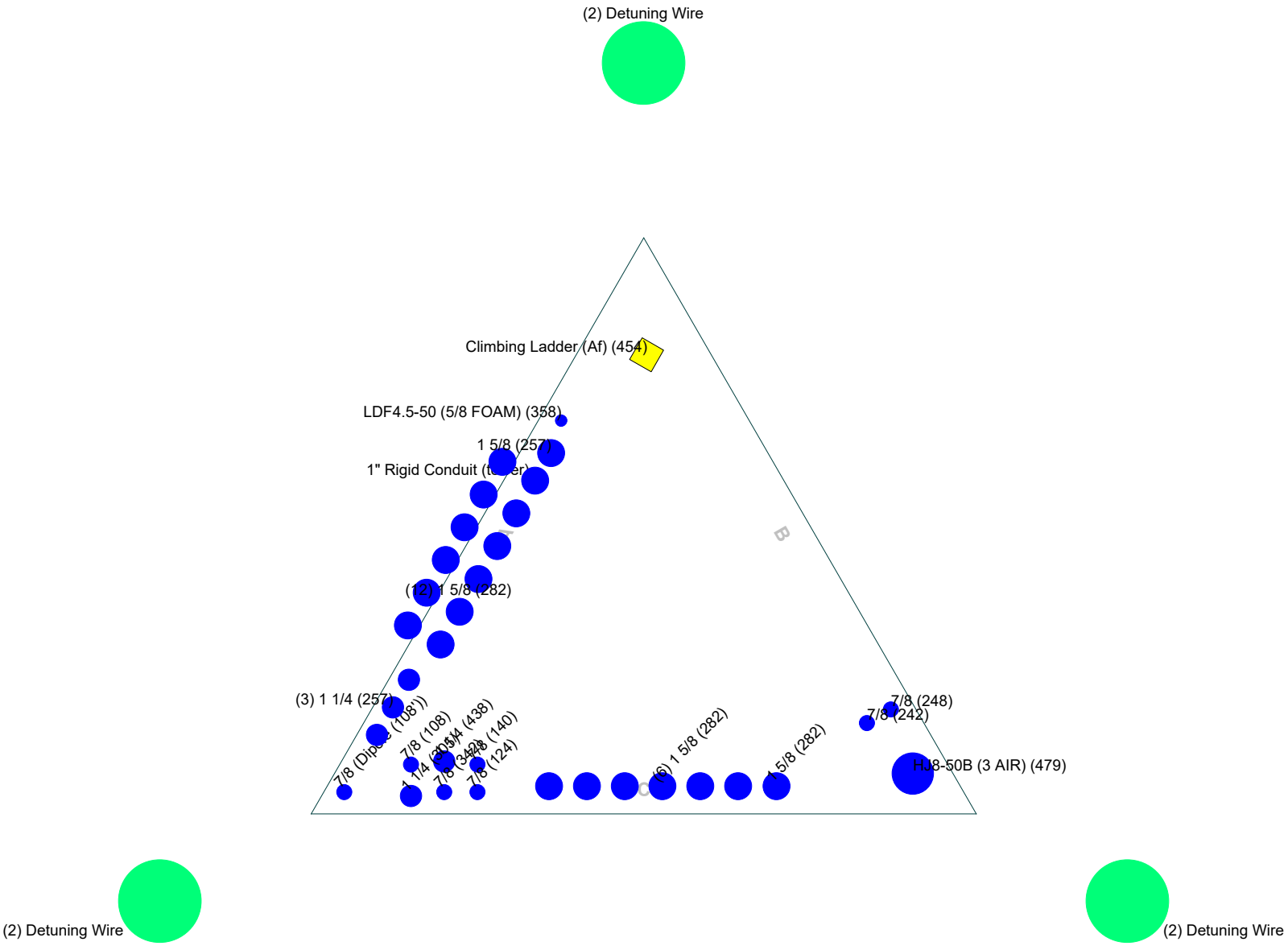
Path: I:\28700\28758\Structural\tnx\28758 rev4.eri		Dwg No. E-6	

Feed Line Plan

Round Flat App In Face App Out Face



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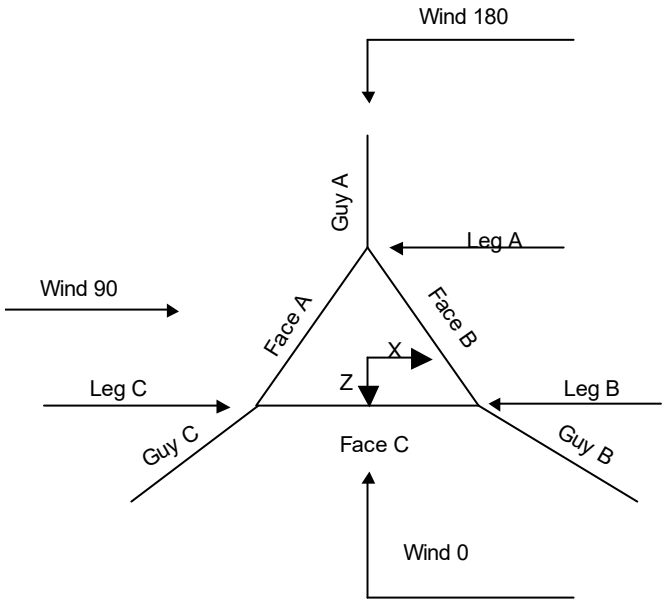
Project: ***28758***			
Client: Sprint	Drawn by: JMA	App'd:	
Code: TIA-222-G	Date: 12/12/18	Scale: NTS	
Path: I:\28700\28758\Structural\tnx\28758 rev4.eri		Dwg No. E-7	

Tower Input Data

The main tower is a 3x guyed tower with an overall height of 495.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 4.00 ft at the top and 4.00 ft at the base.
An index plate is provided at the 3x guyed -tower connection.
There is a pole section.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
Basic wind speed of 93 mph.
Structure Class II.
Exposure Category C.
Topographic Category 5.
Crest Height 294.00 ft.
SEAW RSM-03 procedures for wind speed-up calculations are used.
Topographic Feature: Continuous Ridge.
Slope Distance L: 2388.00 ft.
Distance from Crest x: 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
I-Beam base is 2.00 ft above the pivot.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Safety factor used in guy design is 1.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.



Corner & Starmount Guyed Tower

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	495.00-454.00	41.00	P10x.5	A53-B-35 (35 ksi)	

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 495.00-454.00				1	1	1			

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	454.00-442.00			4.00	1	12.00
T2	442.00-422.00			4.00	1	20.00
T3	422.00-402.00			4.00	1	20.00
T4	402.00-382.00			4.00	1	20.00
T5	382.00-362.00			4.00	1	20.00
T6	362.00-342.00			4.00	1	20.00
T7	342.00-322.00			4.00	1	20.00
T8	322.00-302.00			4.00	1	20.00
T9	302.00-282.00			4.00	1	20.00
T10	282.00-262.00			4.00	1	20.00
T11	262.00-242.00			4.00	1	20.00
T12	242.00-222.00			4.00	1	20.00
T13	222.00-202.00			4.00	1	20.00
T14	202.00-182.00			4.00	1	20.00
T15	182.00-162.00			4.00	1	20.00
T16	162.00-142.00			4.00	1	20.00
T17	142.00-122.00			4.00	1	20.00
T18	122.00-102.00			4.00	1	20.00
T19	102.00-82.00			4.00	1	20.00
T20	82.00-62.00			4.00	1	20.00
T21	62.00-42.00			4.00	1	20.00
T22	42.00-22.00			4.00	1	20.00
T23	22.00-2.00			4.00	1	20.00

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	454.00-442.00	4.00	K Brace Left	No	Yes	0.0000	0.0000
T2	442.00-422.00	4.00	K Brace Right	No	Yes	0.0000	0.0000
T3	422.00-402.00	4.00	K Brace Left	No	Yes	0.0000	0.0000
T4	402.00-382.00	4.00	K Brace Right	No	Yes	0.0000	0.0000
T5	382.00-362.00	4.00	K Brace Left	No	Yes	0.0000	0.0000
T6	362.00-342.00	4.00	K Brace Right	No	Yes	0.0000	0.0000
T7	342.00-322.00	4.00	K Brace Left	No	Yes	0.0000	0.0000
T8	322.00-302.00	4.00	K Brace Right	No	Yes	0.0000	0.0000
T9	302.00-282.00	4.00	K Brace Left	No	Yes	0.0000	0.0000
T10	282.00-262.00	4.00	K Brace Right	No	Yes	0.0000	0.0000
T11	262.00-242.00	4.00	K Brace Left	No	Yes	0.0000	0.0000
T12	242.00-222.00	4.00	K Brace Right	No	Yes	0.0000	0.0000
T13	222.00-202.00	4.00	K Brace Left	No	Yes	0.0000	0.0000
T14	202.00-182.00	4.00	K Brace Right	No	Yes	0.0000	0.0000
T15	182.00-162.00	4.00	K Brace Left	No	Yes	0.0000	0.0000
T16	162.00-142.00	4.00	K Brace Right	No	Yes	0.0000	0.0000
T17	142.00-122.00	4.00	K Brace Left	No	Yes	0.0000	0.0000
T18	122.00-102.00	4.00	K Brace Right	No	Yes	0.0000	0.0000
T19	102.00-82.00	4.00	K Brace Left	No	Yes	0.0000	0.0000
T20	82.00-62.00	4.00	K Brace Right	No	Yes	0.0000	0.0000
T21	62.00-42.00	4.00	K Brace Left	No	Yes	0.0000	0.0000
T22	42.00-22.00	4.00	K Brace Right	No	Yes	0.0000	0.0000
T23	22.00-2.00	4.00	K Brace Left	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	*Leg Type*	*Leg Size*	*Leg Grade*	*Diagonal Type*	*Diagonal Size*	*Diagonal Grade*
T1 454.00-442.00	Solid Round	2	A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T2 442.00-422.00	Solid Round	2	A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T3 422.00-402.00	Solid Round	2 1/4	A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T4 402.00-382.00	Solid Round	2 1/4	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T5 382.00-362.00	Solid Round	2 1/4	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T6 362.00-342.00	Solid Round	2 1/4	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T7 342.00-322.00	Solid Round	2 1/4	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T8 322.00-302.00	Solid Round	2 1/2	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/8	A572-50 (50 ksi)
T9 302.00-282.00	Solid Round	2 1/2	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T10 282.00-262.00	Solid Round	2 3/4	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/8	A36 (36 ksi)
T11 262.00-242.00	Solid Round	2 3/4	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/8	A572-50 (50 ksi)
T12 242.00-222.00	Solid Round	2 3/4	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/8	A36 (36 ksi)
T13 222.00-202.00	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/8	A36 (36 ksi)
T14 202.00-182.00	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/8	A572-50 (50 ksi)
T15 182.00-162.00	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/8	A572-50 (50 ksi)
T16 162.00-142.00	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/8	A572-50 (50 ksi)
T17 142.00-122.00	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/8	A572-50 (50 ksi)
T18 122.00-102.00	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/8	A572-50 (50 ksi)
T19 102.00-82.00	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/8	A572-50 (50 ksi)
T20 82.00-62.00	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/8	A572-50 (50 ksi)
T21 62.00-42.00	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/8	A572-50 (50 ksi)
T22 42.00-22.00	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/8	A572-50 (50 ksi)
T23 22.00-2.00	Solid Round	3	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x3/8	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 454.00-442.00	None	Solid Round		A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T2 442.00-422.00	None	Solid Round		A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T3 422.00-402.00	None	Solid Round		A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T4 402.00-382.00	None	Solid Round		A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T5 382.00-362.00	None	Solid Round		A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T6 362.00-342.00	None	Solid Round		A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T7 342.00-322.00	None	Solid Round		A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T8 322.00-302.00	None	Solid Round		A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T9 302.00-282.00	None	Solid Round		A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T10 282.00-262.00	None	Solid Round		A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T11 262.00-242.00	None	Solid Round		A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T12 242.00-222.00	None	Solid Round		A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T13 222.00-202.00	None	Solid Round		A572-50 (50 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T14 202.00-182.00	None	Solid Round		A36 (36 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T15 182.00-162.00	None	Solid Round		A36 (36 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T16 162.00-142.00	None	Solid Round		A36 (36 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T17 142.00-122.00	None	Solid Round		A36 (36 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T18 122.00-102.00	None	Solid Round		A36 (36 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T19 102.00-82.00	None	Solid Round		A36 (36 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T20 82.00-62.00	None	Solid Round		A36 (36 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T21 62.00-42.00	None	Solid Round		A36 (36 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T22 42.00-22.00	None	Solid Round		A36 (36 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)
T23 22.00-2.00	None	Solid Round		A36 (36 ksi)	Equal Angle	L2x2x3/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
454.00-442.00			(36 ksi)						
T2	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000
442.00-422.00			(36 ksi)						
T3	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000
422.00-402.00			(36 ksi)						
T4	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000
402.00-382.00			(36 ksi)						
T5	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000
382.00-362.00			(36 ksi)						
T6	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000
362.00-342.00			(36 ksi)						
T7	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000
342.00-322.00			(36 ksi)						
T8	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000
322.00-302.00			(36 ksi)						
T9	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000
302.00-282.00			(36 ksi)						
T10	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000
282.00-262.00			(36 ksi)						
T11	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000
262.00-242.00			(36 ksi)						
T12	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000
242.00-222.00			(36 ksi)						
T13	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000
222.00-202.00			(36 ksi)						
T14	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000
202.00-182.00			(36 ksi)						
T15	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000
182.00-162.00			(36 ksi)						
T16	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000
162.00-142.00			(36 ksi)						
T17	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000
142.00-122.00			(36 ksi)						
T18	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000
122.00-102.00			(36 ksi)						
T19	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000
102.00-82.00			(36 ksi)						
T20	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000
82.00-62.00			(36 ksi)						
T21	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000
62.00-42.00			(36 ksi)						
T22	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000
42.00-22.00			(36 ksi)						
T23 22.00-2.00	0.00	0.2500	A36	1	1	1	36.0000	36.0000	36.0000
			(36 ksi)						

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	Yes	1	1	1	1	1	1	1	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
454.00-442.00				1	1	1	1	1	1	1
T2	Yes	Yes	1	1	1	1	1	1	1	1
442.00-422.00				1	1	1	1	1	1	1
T3	Yes	Yes	1	1	1	1	1	1	1	1
422.00-402.00				1	1	1	1	1	1	1
T4	Yes	Yes	1	1	1	1	1	1	1	1
402.00-382.00				1	1	1	1	1	1	1
T5	Yes	Yes	1	1	1	1	1	1	1	1
382.00-362.00				1	1	1	1	1	1	1
T6	Yes	Yes	1	1	1	1	1	1	1	1
362.00-342.00				1	1	1	1	1	1	1
T7	Yes	Yes	1	1	1	1	1	1	1	1
342.00-322.00				1	1	1	1	1	1	1
T8	Yes	Yes	1	1	1	1	1	1	1	1
322.00-302.00				1	1	1	1	1	1	1
T9	Yes	Yes	1	1	1	1	1	1	1	1
302.00-282.00				1	1	1	1	1	1	1
T10	Yes	Yes	1	1	1	1	1	1	1	1
282.00-262.00				1	1	1	1	1	1	1
T11	Yes	Yes	1	1	1	1	1	1	1	1
262.00-242.00				1	1	1	1	1	1	1
T12	Yes	Yes	1	1	1	1	1	1	1	1
242.00-222.00				1	1	1	1	1	1	1
T13	Yes	Yes	1	1	1	1	1	1	1	1
222.00-202.00				1	1	1	1	1	1	1
T14	Yes	Yes	1	1	1	1	1	1	1	1
202.00-182.00				1	1	1	1	1	1	1
T15	Yes	Yes	1	1	1	1	1	1	1	1
182.00-162.00				1	1	1	1	1	1	1
T16	Yes	Yes	1	1	1	1	1	1	1	1
162.00-142.00				1	1	1	1	1	1	1
T17	Yes	Yes	1	1	1	1	1	1	1	1
142.00-122.00				1	1	1	1	1	1	1
T18	Yes	Yes	1	1	1	1	1	1	1	1
122.00-102.00				1	1	1	1	1	1	1
T19	Yes	Yes	1	1	1	1	1	1	1	1
102.00-82.00				1	1	1	1	1	1	1
T20	Yes	Yes	1	1	1	1	1	1	1	1
82.00-62.00				1	1	1	1	1	1	1
T21	Yes	Yes	1	1	1	1	1	1	1	1
62.00-42.00				1	1	1	1	1	1	1
T22	Yes	Yes	1	1	1	1	1	1	1	1
42.00-22.00				1	1	1	1	1	1	1
T23 22.00-2.00	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 454.00-442.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T2 442.00-422.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T3 422.00-402.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T4 402.00-382.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T5 382.00-362.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T6 362.00-342.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T7 342.00-322.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T8 322.00-302.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T9 302.00-282.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T10 282.00-262.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T11 262.00-242.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T12 242.00-222.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T13 222.00-202.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T14 202.00-182.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T15 182.00-162.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T16 162.00-142.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T17 142.00-122.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T18 122.00-102.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T19 102.00-82.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T20 82.00-62.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T21 62.00-42.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T22 42.00-22.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75
T23 22.00-2.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	1	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1	Flange	0.6250	0	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
454.00-442.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T2	Flange	0.6250	3	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
442.00-422.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T3	Flange	0.6250	3	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
422.00-402.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T4	Flange	0.6250	3	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
402.00-382.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T5	Flange	0.6250	3	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
382.00-362.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T6	Flange	0.6250	3	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
362.00-342.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T7	Flange	0.6250	3	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
342.00-322.00		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T8	Flange	0.6250	3	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
322.00-302.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T9	Flange	0.6250	3	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
302.00-282.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T10	Flange	0.6250	3	0.7500	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
282.00-262.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T11	Flange	0.6250	3	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
262.00-242.00		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T12	Flange	0.6250	3	0.7500	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
242.00-222.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T13	Flange	0.6250	3	0.7500	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
222.00-202.00		A325N		A325N		A325N		A325N		A325N		A325N		A325N	
T14	Flange	0.6250	3	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
202.00-182.00		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T15	Flange	0.6250	3	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
182.00-162.00		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T16	Flange	0.6250	3	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
162.00-142.00		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T17	Flange	0.6250	3	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
142.00-122.00		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T18	Flange	0.6250	3	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
122.00-102.00		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T19	Flange	0.6250	3	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
102.00-82.00		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T20	Flange	0.6250	3	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
82.00-62.00		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T21	Flange	0.6250	3	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
62.00-42.00		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T22	Flange	0.6250	3	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
42.00-22.00		A325N		A325X		A325N		A325N		A325N		A325N		A325N	
T23 22.00-2.00	Flange	0.6250	3	0.6250	1	0.6250	0	0.6250	0	0.6250	0	0.6250	1	0.6250	0
		A325N		A325X		A325N		A325N		A325N		A325N		A325N	

Guy Data

Guy Elevation ft	Guy Grade	Guy Size	Initial Tension lb	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %

454	EHS	A	1	10450.00	10%	19000	2.100	476.36	148.00	0.0000	0.00	100%
		B	1	10450.00	10%	19000	2.100	476.36	148.00	0.0000	0.00	100%
		C	1	10450.00	10%	19000	2.100	476.36	148.00	0.0000	0.00	100%
386	EHS	A	1	10450.00	10%	19000	2.100	412.20	148.00	0.0000	0.00	100%
		B	1	10450.00	10%	19000	2.100	412.20	148.00	0.0000	0.00	100%
		C	1	10450.00	10%	19000	2.100	412.20	148.00	0.0000	0.00	100%
326	EHS	A	7/8	7970.00	10%	19000	1.581	356.75	148.00	0.0000	0.00	100%
		B	7/8	7970.00	10%	19000	1.581	356.75	148.00	0.0000	0.00	100%
		C	7/8	7970.00	10%	19000	1.581	356.75	148.00	0.0000	0.00	100%
266	EHS	A	7/8	7970.00	10%	19000	1.581	303.01	148.00	0.0000	0.00	100%
		B	7/8	7970.00	10%	19000	1.581	303.01	148.00	0.0000	0.00	100%
		C	7/8	7970.00	10%	19000	1.581	303.01	148.00	0.0000	0.00	100%
214	EHS	A	7/8	7970.00	10%	19000	1.581	244.01	120.00	0.0000	0.00	100%
		B	7/8	7970.00	10%	19000	1.581	244.01	120.00	0.0000	0.00	100%
		C	7/8	7970.00	10%	19000	1.581	244.01	120.00	0.0000	0.00	100%
162	EHS	A	7/8	6774.50	8.5%	19000	1.581	200.09	120.00	0.0000	0.00	100%
		B	7/8	6774.50	8.5%	19000	1.581	200.09	120.00	0.0000	0.00	100%
		C	7/8	6774.50	8.5%	19000	1.581	200.09	120.00	0.0000	0.00	100%
102	EHS	A	11/16	4000.00	8%	19000	1.000	155.63	120.00	0.0000	0.00	100%
		B	11/16	4000.00	8%	19000	1.000	155.63	120.00	0.0000	0.00	100%
		C	11/16	4000.00	8%	19000	1.000	155.63	120.00	0.0000	0.00	100%
50	EHS	A	1/2	2690.00	10%	21000	0.517	127.76	120.00	0.0000	0.00	100%
		B	1/2	2690.00	10%	21000	0.517	127.76	120.00	0.0000	0.00	100%
		C	1/2	2690.00	10%	21000	0.517	127.76	120.00	0.0000	0.00	100%

Guy Data *(cont'd)*

Guy Elevation ft	*Mount Type*	*Torque-Arm Spread ft*	*Torque-Arm Leg Angle °*	*Torque-Arm Style*	*Torque-Arm Grade*	*Torque-Arm Type*	*Torque-Arm Size*
454	Corner						
386	Corner						
326	Corner						
266	Corner						
214	Corner						
162	Corner						
102	Corner						
50	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	*Diagonal Grade*	*Diagonal Type*	*Upper Diagonal Size*	*Lower Diagonal Size*	*Is Strap.*	*Pull-Off Grade*	*Pull-Off Type*	*Pull-Off Size*
454.00	A572-50 (50 ksi)	Equal Angle			No	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/8
386.00	A572-50 (50 ksi)	Equal Angle			No	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/8
326.00	A572-50 (50 ksi)	Equal Angle			No	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/8
266.00	A572-50 (50 ksi)	Equal Angle			No	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/8
214.00	A572-50 (50 ksi)	Equal Angle			No	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/8

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
162.00	A572-50 (50 ksi)	Equal Angle			No	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/8
102.00	A572-50 (50 ksi)	Equal Angle			No	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/8
50.00	A572-50 (50 ksi)	Equal Angle			No	A36 (36 ksi)	Equal Angle	L2 1/2x2 1/2x3/8

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A lb	Cable Weight B lb	Cable Weight C lb	Cable Weight D lb	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
454	1000.36	1000.36	1000.36		21.83 8.1 sec/pulse	21.83 8.1 sec/pulse	21.83 8.1 sec/pulse	
386	865.62	865.62	865.62		16.45 7.0 sec/pulse	16.45 7.0 sec/pulse	16.45 7.0 sec/pulse	
326	564.02	564.02	564.02		12.24 6.0 sec/pulse	12.24 6.0 sec/pulse	12.24 6.0 sec/pulse	
266	479.06	479.06	479.06		8.88 5.1 sec/pulse	8.88 5.1 sec/pulse	8.88 5.1 sec/pulse	
214	385.77	385.77	385.77		5.79 4.2 sec/pulse	5.79 4.2 sec/pulse	5.79 4.2 sec/pulse	
162	316.33	316.33	316.33		4.59 3.7 sec/pulse	4.59 3.7 sec/pulse	4.59 3.7 sec/pulse	
102	155.63	155.63	155.63		2.99 3.0 sec/pulse	2.99 3.0 sec/pulse	2.99 3.0 sec/pulse	
50	66.05	66.05	66.05		1.56 2.2 sec/pulse	1.56 2.2 sec/pulse	1.56 2.2 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
454	No	No			1	1	1	1
386	No	No			1	1	1	1
326	No	No			1	1	1	1
266	No	No			1	1	1	1
214	No	No			1	1	1	1
162	No	No			1	1	1	1
102	No	No			1	1	1	1
50	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
454	0.6250 A325N	0	0.0000	0.75	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
386	0.6250 A325N	0	0.0000	0.75	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
326	0.6250 A325N	0	0.0000	0.75	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
266	0.6250 A325N	0	0.0000	0.75	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
214	0.0000 A325N	0	0.0000	1	0.7500 A325N	2	0.0000	0.75	0.6250 A325X	0	0.0000	0.75
162	0.6250 A325N	0	0.0000	0.75	0.6250 A325X	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
102	0.6250 A325N	0	0.0000	0.75	0.6250 A325X	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
50	0.6250 A325N	0	0.0000	0.75	0.7500 A325N	2	0.0000	0.75	0.6250 A325N	0	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
454	A	227.00	41	12	2.0706
	B	227.00	41	12	2.0706
	C	227.00	41	12	2.0706
386	A	193.00	41	12	2.0587
	B	193.00	41	12	2.0587
	C	193.00	41	12	2.0587
326	A	163.00	41	12	2.0442
	B	163.00	41	12	2.0442
	C	163.00	41	12	2.0442
266	A	133.00	40	12	2.0242
	B	133.00	40	12	2.0242
	C	133.00	40	12	2.0242
214	A	107.00	39	11	1.9998
	B	107.00	39	11	1.9998
	C	107.00	39	11	1.9998
162	A	81.00	38	11	1.9646
	B	81.00	38	11	1.9646
	C	81.00	38	11	1.9646
102	A	51.00	36	10	1.8990
	B	51.00	36	10	1.8990
	C	51.00	36	10	1.8990
50	A	25.00	32	9	1.7884
	B	25.00	32	9	1.7884
	C	25.00	32	9	1.7884

Guy-Mast Forces (Excluding Wind) - No Ice

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	lb	lb	lb	lb	lb-ft	lb-ft	lb-ft
454	A	72.2083	11402.49 10450.00	0.00	10903.52	-3336.15	-25180.61	0.00	0.00
	B	72.2083	11402.49 10450.00	2889.19	10903.52	1668.08	12590.30	0.00	-21807.05
	C	72.2083	11402.49 10450.00	-2889.19	10903.52	1668.08	12590.30	-0.00	21807.05
			Sum:	0.00	32710.57	0.00	0.00	0.00	0.00
386	A	69.3216	11259.83 10450.00	0.00	10588.07	-3830.99	-24452.11	0.00	0.00
	B	69.3216	11259.83 10450.00	3317.73	10588.07	1915.49	12226.05	0.00	-21176.15
	C	69.3216	11259.83 10450.00	-3317.73	10588.07	1915.49	12226.05	-0.00	21176.15
			Sum:	0.00	31764.22	-0.00	0.00	0.00	0.00
326	A	65.9200	8484.92 7970.00	0.00	7793.24	-3355.48	-17997.72	0.00	0.00
	B	65.9200	8484.92 7970.00	2905.93	7793.24	1677.74	8998.86	0.00	-15586.48
	C	65.9200	8484.92 7970.00	-2905.93	7793.24	1677.74	8998.86	-0.00	15586.48
			Sum:	0.00	23379.73	-0.00	0.00	0.00	0.00
266	A	61.2901	8390.15 7970.00	0.00	7413.74	-3928.26	-17121.29	0.00	0.00
	B	61.2901	8390.15 7970.00	3401.97	7413.74	1964.13	8560.64	0.00	-14827.47
	C	61.2901	8390.15 7970.00	-3401.97	7413.74	1964.13	8560.64	-0.00	14827.47
			Sum:	0.00	22241.21	-0.00	0.00	0.00	0.00
214	A	61.1911	8308.02 7970.00	0.00	7324.39	-3921.28	-16914.96	0.00	0.00
	B	61.1911	8308.02 7970.00	3395.93	7324.39	1960.64	8457.48	0.00	-14648.78
	C	61.1911	8308.02 7970.00	-3395.93	7324.39	1960.64	8457.48	-0.00	14648.78
			Sum:	0.00	21973.17	0.00	0.00	0.00	0.00
162	A	54.0022	7030.42 6774.50	0.00	5742.33	-4056.16	-13261.34	0.00	0.00
	B	54.0022	7030.42 6774.50	3512.74	5742.33	2028.08	6630.67	0.00	-11484.65
	C	54.0022	7030.42 6774.50	-3512.74	5742.33	2028.08	6630.67	-0.00	11484.65
			Sum:	0.00	17226.98	-0.00	0.00	0.00	0.00
102	A	40.9148	4101.92 4000.00	0.00	2730.84	-3060.76	-6306.60	0.00	0.00
	B	40.9148	4101.92 4000.00	2650.70	2730.84	1530.38	3153.30	0.00	-5461.68
	C	40.9148	4101.92 4000.00	-2650.70	2730.84	1530.38	3153.30	-0.00	5461.68
			Sum:	0.00	8192.52	-0.00	0.00	0.00	0.00
50	A	23.0179	2715.83 2690.00	0.00	1089.89	-2487.54	-2516.98	0.00	0.00
	B	23.0179	2715.83 2690.00	2154.28	1089.89	1243.77	1258.49	0.00	-2179.77
	C	23.0179	2715.83 2690.00	-2154.28	1089.89	1243.77	1258.49	-0.00	2179.77
			Sum:	0.00	3269.66	-0.00	0.00	0.00	0.00

Guy-Mast Forces (Excluding Wind) - Ice

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	lb	lb	lb	lb	lb-ft	lb-ft	lb-ft
454	A	72.2083	19753.52 15279.10	0.00	19024.07	-5318.49	-43934.21	0.00	0.00
	B	72.2083	19753.52 15279.10	4605.95	19024.07	2659.24	21967.10	0.00	-38048.14
	C	72.2083	19753.52 15279.10	-4605.95	19024.07	2659.24	21967.10	-0.00	38048.14
			Sum:	0.00	57072.21	0.00	0.00	0.00	0.00
386	A	69.3216	19303.29 15527.76	0.00	18307.29	-6120.49	-42278.87	0.00	0.00
	B	69.3216	19303.29 15527.76	5300.50	18307.29	3060.25	21139.43	0.00	-36614.57
	C	69.3216	19303.29 15527.76	-5300.50	18307.29	3060.25	21139.43	-0.00	36614.57
			Sum:	0.00	54921.86	-0.00	0.00	0.00	0.00
326	A	65.9200	15384.86 12496.32	0.00	14305.31	-5661.44	-33036.70	0.00	0.00
	B	65.9200	15384.86 12496.32	4902.95	14305.31	2830.72	16518.35	0.00	-28610.62
	C	65.9200	15384.86 12496.32	-4902.95	14305.31	2830.72	16518.35	-0.00	28610.62
			Sum:	0.00	42915.93	-0.00	0.00	0.00	0.00
266	A	61.2901	15004.45 12679.69	0.00	13461.82	-6626.68	-31088.75	0.00	0.00
	B	61.2901	15004.45 12679.69	5738.87	13461.82	3313.34	15544.38	0.00	-26923.65
	C	61.2901	15004.45 12679.69	-5738.87	13461.82	3313.34	15544.38	-0.00	26923.65
			Sum:	0.00	40385.47	-0.00	0.00	0.00	0.00
214	A	61.1911	13925.64 12086.43	0.00	12443.18	-6252.27	-28736.29	0.00	0.00
	B	61.1911	13925.64 12086.43	5414.62	12443.18	3126.13	14368.15	0.00	-24886.36
	C	61.1911	13925.64 12086.43	-5414.62	12443.18	3126.13	14368.15	-0.00	24886.36
			Sum:	0.00	37329.54	-0.00	0.00	0.00	0.00
162	A	54.0022	12646.13 11287.28	0.00	10518.78	-7019.96	-24292.08	0.00	0.00
	B	54.0022	12646.13 11287.28	6079.46	10518.78	3509.98	12146.04	0.00	-21037.56
	C	54.0022	12646.13 11287.28	-6079.46	10518.78	3509.98	12146.04	-0.00	21037.56
			Sum:	0.00	31556.34	-0.00	0.00	0.00	0.00
102	A	40.9148	8324.76 7611.49	0.00	5761.02	-6009.35	-13304.49	0.00	0.00
	B	40.9148	8324.76 7611.49	5204.25	5761.02	3004.68	6652.25	0.00	-11522.03
	C	40.9148	8324.76 7611.49	-5204.25	5761.02	3004.68	6652.25	-0.00	11522.03
			Sum:	0.00	17283.05	-0.00	0.00	0.00	0.00
50	A	23.0179	5635.35 5359.89	0.00	2500.85	-5050.04	-5775.47	0.00	0.00
	B	23.0179	5635.35 5359.89	4373.46	2500.85	2525.02	2887.74	0.00	-5001.71
	C	23.0179	5635.35	-4373.46	2500.85	2525.02	2887.74	-0.00	5001.71

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top / Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	lb	lb	lb	lb	lb-ft	lb-ft	lb-ft
			5359.89						
			Sum:	0.00	7502.56	-0.00	0.00	0.00	0.00

Guy-Mast Forces (Excluding Wind) - Service

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top / Bottom	F_x	F_y	F_z	M_x	M_y	M_z
ft		°	lb	lb	lb	lb	lb-ft	lb-ft	lb-ft
454	A	72.2083	11402.49 10450.00	0.00	10903.52	-3336.15	-25180.61	0.00	0.00
	B	72.2083	11402.49 10450.00	2889.19	10903.52	1668.08	12590.30	0.00	-21807.05
	C	72.2083	11402.49 10450.00	-2889.19	10903.52	1668.08	12590.30	-0.00	21807.05
			Sum:	0.00	32710.57	0.00	0.00	0.00	0.00
386	A	69.3216	11259.83 10450.00	0.00	10588.07	-3830.99	-24452.11	0.00	0.00
	B	69.3216	11259.83 10450.00	3317.73	10588.07	1915.49	12226.05	0.00	-21176.15
	C	69.3216	11259.83 10450.00	-3317.73	10588.07	1915.49	12226.05	-0.00	21176.15
			Sum:	0.00	31764.22	-0.00	0.00	0.00	0.00
326	A	65.9200	8484.92 7970.00	0.00	7793.24	-3355.48	-17997.72	0.00	0.00
	B	65.9200	8484.92 7970.00	2905.93	7793.24	1677.74	8998.86	0.00	-15586.48
	C	65.9200	8484.92 7970.00	-2905.93	7793.24	1677.74	8998.86	-0.00	15586.48
			Sum:	0.00	23379.73	-0.00	0.00	0.00	0.00
266	A	61.2901	8390.15 7970.00	0.00	7413.74	-3928.26	-17121.29	0.00	0.00
	B	61.2901	8390.15 7970.00	3401.97	7413.74	1964.13	8560.64	0.00	-14827.47
	C	61.2901	8390.15 7970.00	-3401.97	7413.74	1964.13	8560.64	-0.00	14827.47
			Sum:	0.00	22241.21	-0.00	0.00	0.00	0.00
214	A	61.1911	8308.02 7970.00	0.00	7324.39	-3921.28	-16914.96	0.00	0.00
	B	61.1911	8308.02 7970.00	3395.93	7324.39	1960.64	8457.48	0.00	-14648.78
	C	61.1911	8308.02 7970.00	-3395.93	7324.39	1960.64	8457.48	-0.00	14648.78
			Sum:	0.00	21973.17	0.00	0.00	0.00	0.00
162	A	54.0022	7030.42 6774.50	0.00	5742.33	-4056.16	-13261.34	0.00	0.00
	B	54.0022	7030.42 6774.50	3512.74	5742.33	2028.08	6630.67	0.00	-11484.65
	C	54.0022	7030.42 6774.50	-3512.74	5742.33	2028.08	6630.67	-0.00	11484.65
			Sum:	0.00	17226.98	-0.00	0.00	0.00	0.00
102	A	40.9148	4101.92 4000.00	0.00	2730.84	-3060.76	-6306.60	0.00	0.00

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top Bottom lb	F_x lb	F_y lb	F_z lb	M_x lb-ft	M_y lb-ft	M_z lb-ft
	B	40.9148	4101.92 4000.00	2650.70	2730.84	1530.38	3153.30	0.00	-5461.68
	C	40.9148	4101.92 4000.00	-2650.70	2730.84	1530.38	3153.30	-0.00	5461.68
			Sum:	0.00	8192.52	-0.00	0.00	0.00	0.00
50	A	23.0179	2715.83 2690.00	0.00	1089.89	-2487.54	-2516.98	0.00	0.00
	B	23.0179	2715.83 2690.00	2154.28	1089.89	1243.77	1258.49	0.00	-2179.77
	C	23.0179	2715.83 2690.00	-2154.28	1089.89	1243.77	1258.49	-0.00	2179.77
			Sum:	0.00	3269.66	-0.00	0.00	0.00	0.00

Guy-Tensioning Information

Guy Elevation ft		H ft	V ft	Temperature At Time Of Tensioning: 0 F Initial Tension lb	0 F Intercept ft	20 F Initial Tension lb	20 F Intercept ft	40 F Initial Tension lb	40 F Intercept ft	60 F Initial Tension lb	60 F Intercept ft	80 F Initial Tension lb	80 F Intercept ft	100 F Initial Tension lb	100 F Intercept ft	120 F Initial Tension lb	120 F Intercept ft
454	A	145.69	454.00	10841	21.07	10710	21.32	10580	21.57	10450	21.83	10320	22.09	10191	22.36	10062	22.64
	B	145.69	454.00	10841	21.07	10710	21.32	10580	21.57	10450	21.83	10320	22.09	10191	22.36	10062	22.64
	C	145.69	454.00	10841	21.07	10710	21.32	10580	21.57	10450	21.83	10320	22.09	10191	22.36	10062	22.64
386	A	145.69	386.00	10972	15.69	10797	15.94	10623	16.19	10450	16.45	10277	16.72	10105	17.00	9934	17.28
	B	145.69	386.00	10972	15.69	10797	15.94	10623	16.19	10450	16.45	10277	16.72	10105	17.00	9934	17.28
	C	145.69	386.00	10972	15.69	10797	15.94	10623	16.19	10450	16.45	10277	16.72	10105	17.00	9934	17.28
326	A	145.69	326.00	8504	11.49	8325	11.73	8147	11.98	7970	12.24	7794	12.51	7618	12.79	7444	13.08
	B	145.69	326.00	8504	11.49	8325	11.73	8147	11.98	7970	12.24	7794	12.51	7618	12.79	7444	13.08
	C	145.69	326.00	8504	11.49	8325	11.73	8147	11.98	7970	12.24	7794	12.51	7618	12.79	7444	13.08
266	A	145.69	266.00	8710	8.14	8462	8.38	8215	8.62	7970	8.88	7726	9.16	7484	9.45	7244	9.75
	B	145.69	266.00	8710	8.14	8462	8.38	8215	8.62	7970	8.88	7726	9.16	7484	9.45	7244	9.75
	C	145.69	266.00	8710	8.14	8462	8.38	8215	8.62	7970	8.88	7726	9.16	7484	9.45	7244	9.75
214	A	117.69	214.00	8730	5.29	8476	5.45	8222	5.61	7970	5.79	7719	5.97	7469	6.17	7220	6.38
	B	117.69	214.00	8730	5.29	8476	5.45	8222	5.61	7970	5.79	7719	5.97	7469	6.17	7220	6.38
	C	117.69	214.00	8730	5.29	8476	5.45	8222	5.61	7970	5.79	7719	5.97	7469	6.17	7220	6.38
162	A	117.69	162.00	7884	3.95	7511	4.15	7141	4.36	6775	4.59	6412	4.84	6055	5.12	5704	5.43
	B	117.69	162.00	7884	3.95	7511	4.15	7141	4.36	6775	4.59	6412	4.84	6055	5.12	5704	5.43
	C	117.69	162.00	7884	3.95	7511	4.15	7141	4.36	6775	4.59	6412	4.84	6055	5.12	5704	5.43
102	A	117.69	102.00	5115	2.35	4738	2.53	4366	2.74	4000	2.99	3643	3.28	3296	3.62	2965	4.02
	B	117.69	102.00	5115	2.35	4738	2.53	4366	2.74	4000	2.99	3643	3.28	3296	3.62	2965	4.02
	C	117.69	102.00	5115	2.35	4738	2.53	4366	2.74	4000	2.99	3643	3.28	3296	3.62	2965	4.02
50	A	117.69	50.00	3699	1.14	3360	1.25	3023	1.39	2690	1.56	2363	1.78	2044	2.05	1740	2.41
	B	117.69	50.00	3699	1.14	3360	1.25	3023	1.39	2690	1.56	2363	1.78	2044	2.05	1740	2.41
	C	117.69	50.00	3699	1.14	3360	1.25	3023	1.39	2690	1.56	2363	1.78	2044	2.05	1740	2.41

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
**********													
Climbing Ladder (Af) (454)	A	No	No	Af (CaAa)	454.00 - 0.00	-3.5000	0.35	1	1	3.8400	1.8000		7.90
1" Rigid Conduit	A	No	No	Ar (CaAa)	0.00 - 0.00	-1.0000	0.1	1	1	1.3150	1.0000		1.20

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
(tower)													
**********													
HJ8-50B (3 AIR) (479)	B	No	No	Ar (CaAa)	454.00 - 0.00	-1.0000	0.4	1	1	3.0100	3.0100		1.78
**********													
7/8 (Dipole (108'))	C	No	No	Ar (CaAa)	454.00 - 0.00	-1.0000	0.45	1	1	1.1100	1.1100		0.54
**********													
1 1/4 (438)	C	No	No	Ar (CaAa)	438.00 - 0.00	-3.0000	0.3	1	1	1.5500	1.5500		0.66
**********													
LDF4.5-50 (5/8 FOAM) (358)	A	No	No	Ar (CaAa)	353.00 - 0.00	-1.0000	0.2	1	1	0.8700	0.8700		0.15
**********													
7/8 (342)	C	No	No	Ar (CaAa)	340.00 - 0.00	-1.0000	0.3	1	1	1.1100	1.1100		0.54
**********													
1 1/4 (305)	C	No	No	Ar (CaAa)	305.00 - 0.00	-0.5000	0.35	1	1	1.5500	1.5500		0.66
**********													
1 5/8 (282)	C	No	No	Ar (CaAa)	280.00 - 0.00	-1.0000	0	6	6	0.7500	1.9800		1.04
1 5/8 (282)	A	No	No	Ar (CaAa)	280.00 - 0.00	-1.0000	-0.04	12	6	0.7500	1.9800		1.04
1 5/8 (282)	C	No	No	Ar (CaAa)	280.00 - 0.00	-1.0000	-0.2	1	1	0.7500	1.9800		1.04
**********													
1 5/8 (257)	A	No	No	Ar (CaAa)	257.00 - 0.00	-1.0000	0.15	1	1	1.9800	1.9800		1.04
1 1/4 (257)	A	No	No	Ar (CaAa)	257.00 - 0.00	-0.5000	-0.3	3	3	0.7500	1.5500		0.66
**********													
7/8 (248)	B	No	No	Ar (CaAa)	248.00 - 0.00	-1.0000	0.3	1	1	1.1100	1.1100		0.54
**********													
7/8 (242)	B	No	No	Ar (CaAa)	242.00 - 0.00	-3.0000	0.3	1	1	1.1100	1.1100		0.54
**********													
7/8 (140)	C	No	No	Ar (CaAa)	140.00 - 0.00	-3.0000	0.25	1	1	1.1100	1.1100		0.54
**********													
7/8 (124)	C	No	No	Ar (CaAa)	125.00 - 0.00	-1.0000	0.25	1	1	1.1100	1.1100		0.54
**********													
7/8 (108)	C	No	No	Ar (CaAa)	108.00 - 0.00	-3.0000	0.35	1	1	1.1100	1.1100		0.54
**********													

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight plf
**********											
Detuning Wire	A	No	No	CaAa (Out Of	240.00 - 0.00	0.0000	0.2	2	No Ice	0.02	0.07

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight plf
				Face)					1/2"	0.12	0.48
									Ice	0.22	1.52
									1" Ice		
Detuning Wire	B	No	No	CaAa (Out Of Face)	240.00 - 0.00	0.0000	0.2	2	No Ice	0.02	0.07
									1/2"	0.12	0.48
									Ice	0.22	1.52
									1" Ice		
Detuning Wire	C	No	No	CaAa (Out Of Face)	240.00 - 0.00	0.0000	0.2	2	No Ice	0.02	0.07
									1/2"	0.12	0.48
									Ice	0.22	1.52
									1" Ice		
**********											

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	495.00-454.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T1	454.00-442.00	A	0.000	0.000	3.600	0.000	94.80
		B	0.000	0.000	3.370	0.000	21.36
		C	0.000	0.000	1.332	0.000	6.48
T2	442.00-422.00	A	0.000	0.000	6.000	0.000	158.00
		B	0.000	0.000	5.614	0.000	35.60
		C	0.000	0.000	4.700	0.000	21.36
T3	422.00-402.00	A	0.000	0.000	6.000	0.000	158.00
		B	0.000	0.000	5.611	0.000	35.60
		C	0.000	0.000	5.320	0.000	24.00
T4	402.00-382.00	A	0.000	0.000	6.000	0.000	158.00
		B	0.000	0.000	5.608	0.000	35.60
		C	0.000	0.000	5.320	0.000	24.00
T5	382.00-362.00	A	0.000	0.000	6.000	0.000	158.00
		B	0.000	0.000	5.605	0.000	35.60
		C	0.000	0.000	5.320	0.000	24.00
T6	362.00-342.00	A	0.000	0.000	6.957	0.000	159.65
		B	0.000	0.000	5.602	0.000	35.60
		C	0.000	0.000	5.320	0.000	24.00
T7	342.00-322.00	A	0.000	0.000	7.740	0.000	161.00
		B	0.000	0.000	5.599	0.000	35.60
		C	0.000	0.000	7.318	0.000	33.72
T8	322.00-302.00	A	0.000	0.000	7.740	0.000	161.00
		B	0.000	0.000	5.597	0.000	35.60
		C	0.000	0.000	8.005	0.000	36.78
T9	302.00-282.00	A	0.000	0.000	7.740	0.000	161.00
		B	0.000	0.000	5.595	0.000	35.60
		C	0.000	0.000	10.640	0.000	48.00
T10	282.00-262.00	A	0.000	0.000	50.508	0.000	385.64
		B	0.000	0.000	5.595	0.000	35.60
		C	0.000	0.000	35.588	0.000	179.04
T11	262.00-242.00	A	0.000	0.000	65.205	0.000	455.90
		B	0.000	0.000	6.262	0.000	38.84
		C	0.000	0.000	38.360	0.000	193.60
T12	242.00-222.00	A	0.000	0.000	68.520	0.675	473.34
		B	0.000	0.000	10.038	0.675	59.54
		C	0.000	0.000	38.360	0.675	195.94
T13	222.00-202.00	A	0.000	0.000	68.520	0.750	473.60

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		B	0.000	0.000	10.043	0.750	59.80
		C	0.000	0.000	38.360	0.750	196.20
T14	202.00-182.00	A	0.000	0.000	68.520	0.750	473.60
		B	0.000	0.000	10.052	0.750	59.80
		C	0.000	0.000	38.360	0.750	196.20
T15	182.00-162.00	A	0.000	0.000	68.520	0.750	473.60
		B	0.000	0.000	10.064	0.750	59.80
		C	0.000	0.000	38.360	0.750	196.20
T16	162.00-142.00	A	0.000	0.000	68.520	0.750	473.60
		B	0.000	0.000	10.083	0.750	59.80
		C	0.000	0.000	38.360	0.750	196.20
T17	142.00-122.00	A	0.000	0.000	68.520	0.750	473.60
		B	0.000	0.000	10.110	0.750	59.80
		C	0.000	0.000	40.691	0.750	207.54
T18	122.00-102.00	A	0.000	0.000	68.520	0.750	473.60
		B	0.000	0.000	10.148	0.750	59.80
		C	0.000	0.000	43.466	0.750	221.04
T19	102.00-82.00	A	0.000	0.000	68.520	0.750	473.60
		B	0.000	0.000	10.204	0.750	59.80
		C	0.000	0.000	45.020	0.750	228.60
T20	82.00-62.00	A	0.000	0.000	68.520	0.750	473.60
		B	0.000	0.000	10.288	0.750	59.80
		C	0.000	0.000	45.020	0.750	228.60
T21	62.00-42.00	A	0.000	0.000	68.520	0.750	473.60
		B	0.000	0.000	10.421	0.750	59.80
		C	0.000	0.000	45.020	0.750	228.60
T22	42.00-22.00	A	0.000	0.000	68.520	0.750	473.60
		B	0.000	0.000	10.460	0.750	59.80
		C	0.000	0.000	45.020	0.750	228.60
T23	22.00-2.00	A	0.000	0.000	68.520	0.750	473.60
		B	0.000	0.000	10.460	0.750	59.80
		C	0.000	0.000	45.020	0.750	228.60

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
L1	495.00-454.00	A	2.105	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T1	454.00-442.00	A	2.103	0.000	0.000	8.648	0.000	243.62
		B		0.000	0.000	8.660	0.000	179.04
		C		0.000	0.000	6.380	0.000	105.57
T2	442.00-422.00	A	2.102	0.000	0.000	14.408	0.000	405.79
		B		0.000	0.000	14.428	0.000	298.16
		C		0.000	0.000	19.834	0.000	336.38
T3	422.00-402.00	A	2.100	0.000	0.000	14.401	0.000	405.47
		B		0.000	0.000	14.421	0.000	297.84
		C		0.000	0.000	22.122	0.000	376.06
T4	402.00-382.00	A	2.098	0.000	0.000	14.393	0.000	405.13
		B		0.000	0.000	14.413	0.000	297.51
		C		0.000	0.000	22.106	0.000	375.55
T5	382.00-362.00	A	2.096	0.000	0.000	14.385	0.000	404.76
		B		0.000	0.000	14.405	0.000	297.15
		C		0.000	0.000	22.090	0.000	374.99
T6	362.00-342.00	A	2.094	0.000	0.000	19.940	0.000	489.42
		B		0.000	0.000	14.396	0.000	296.75

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		C		0.000	0.000	22.072	0.000	374.38
T7	342.00-322.00	A	2.091	0.000	0.000	24.472	0.000	558.25
		B		0.000	0.000	14.386	0.000	296.31
		C		0.000	0.000	31.579	0.000	530.67
T8	322.00-302.00	A	2.089	0.000	0.000	24.449	0.000	557.39
		B		0.000	0.000	14.375	0.000	295.81
		C		0.000	0.000	34.322	0.000	576.82
T9	302.00-282.00	A	2.085	0.000	0.000	24.423	0.000	556.41
		B		0.000	0.000	14.362	0.000	295.24
		C		0.000	0.000	44.006	0.000	744.13
T10	282.00-262.00	A	2.082	0.000	0.000	73.198	0.000	1693.99
		B		0.000	0.000	14.346	0.000	294.58
		C		0.000	0.000	101.634	0.000	1724.23
T11	262.00-242.00	A	2.077	0.000	0.000	109.842	0.000	2286.29
		B		0.000	0.000	17.488	0.000	345.58
		C		0.000	0.000	107.929	0.000	1828.74
T12	242.00-222.00	A	2.072	0.000	0.000	120.138	15.594	2651.39
		B		0.000	0.000	35.324	15.594	851.06
		C		0.000	0.000	107.792	15.594	2037.64
T13	222.00-202.00	A	2.066	0.000	0.000	119.980	17.276	2666.69
		B		0.000	0.000	35.249	17.276	870.31
		C		0.000	0.000	107.628	17.276	2053.06
T14	202.00-182.00	A	2.058	0.000	0.000	119.789	17.216	2656.41
		B		0.000	0.000	35.159	17.216	864.79
		C		0.000	0.000	107.431	17.216	2042.93
T15	182.00-162.00	A	2.049	0.000	0.000	119.555	17.143	2643.88
		B		0.000	0.000	35.049	17.143	858.07
		C		0.000	0.000	107.189	17.143	2030.57
T16	162.00-142.00	A	2.038	0.000	0.000	119.266	17.051	2628.40
		B		0.000	0.000	34.912	17.051	849.76
		C		0.000	0.000	106.890	17.051	2015.31
T17	142.00-122.00	A	2.023	0.000	0.000	118.903	16.937	2609.01
		B		0.000	0.000	34.741	16.937	839.36
		C		0.000	0.000	117.345	16.937	2170.22
T18	122.00-102.00	A	2.005	0.000	0.000	118.440	16.791	2584.29
		B		0.000	0.000	34.521	16.791	826.11
		C		0.000	0.000	129.589	16.791	2347.75
T19	102.00-82.00	A	1.981	0.000	0.000	117.832	16.599	2554.78
		B		0.000	0.000	34.234	16.599	811.57
		C		0.000	0.000	135.842	16.599	2424.21
T20	82.00-62.00	A	1.949	0.000	0.000	117.007	16.339	2515.96
		B		0.000	0.000	33.844	16.339	792.98
		C		0.000	0.000	134.598	16.339	2374.12
T21	62.00-42.00	A	1.902	0.000	0.000	115.822	15.966	2460.66
		B		0.000	0.000	33.283	15.966	766.55
		C		0.000	0.000	132.813	15.966	2302.97
T22	42.00-22.00	A	1.827	0.000	0.000	113.934	15.370	2373.63
		B		0.000	0.000	32.389	15.370	725.06
		C		0.000	0.000	129.967	15.370	2191.50
T23	22.00-2.00	A	1.672	0.000	0.000	109.988	14.123	2196.09
		B		0.000	0.000	30.519	14.123	640.88
		C		0.000	0.000	124.015	14.123	1966.16

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	495.00-454.00	0.0000	0.0000	0.0000	0.0000
T1	454.00-442.00	1.9637	0.6801	0.3258	0.0687
T2	442.00-422.00	1.4120	1.0469	-0.4565	0.6174
T3	422.00-402.00	1.2474	1.1063	-0.6286	0.7317
T4	402.00-382.00	1.2364	1.0978	-0.6252	0.7283
T5	382.00-362.00	1.2820	1.1346	-0.6417	0.7462
T6	362.00-342.00	1.1495	0.8844	-0.7908	0.2565
T7	342.00-322.00	0.6607	1.0285	-1.5615	0.5013
T8	322.00-302.00	0.4814	1.0730	-1.6785	0.6414
T9	302.00-282.00	-0.0604	1.5216	-2.4341	1.2231
T10	282.00-262.00	-1.3940	0.5635	-2.4013	1.2731
T11	262.00-242.00	-2.1111	0.5465	-2.9425	1.2115
T12	242.00-222.00	-1.7977	0.7059	-1.7179	1.1466
T13	222.00-202.00	-1.7748	0.6975	-1.6584	1.1045
T14	202.00-182.00	-1.7793	0.7007	-1.6665	1.1087
T15	182.00-162.00	-1.7762	0.7022	-1.6694	1.1092
T16	162.00-142.00	-1.7655	0.7021	-1.6676	1.1064
T17	142.00-122.00	-1.9196	0.8647	-1.9127	1.3360
T18	122.00-102.00	-2.1085	1.0695	-2.2158	1.6222
T19	102.00-82.00	-2.2312	1.1668	-2.4297	1.7515
T20	82.00-62.00	-2.2186	1.1787	-2.4476	1.7593
T21	62.00-42.00	-2.1797	1.1886	-2.4557	1.7580
T22	42.00-22.00	-2.7349	0.9308	-2.4862	1.7673
T23	22.00-2.00	-2.7349	0.9308	-2.5324	1.7716

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	2	Climbing Ladder (Af)	442.00 - 454.00	0.6000	0.5031
T1	5	HJ8-50B (3 AIR)	442.00 - 454.00	1.0000	0.5031
T1	7	7/8	442.00 - 454.00	0.6000	0.5031
T2	2	Climbing Ladder (Af)	422.00 - 442.00	0.6000	0.5063
T2	5	HJ8-50B (3 AIR)	422.00 - 442.00	1.0000	0.5063
T2	7	7/8	422.00 - 442.00	0.6000	0.5063
T2	9	1 1/4	422.00 - 438.00	0.6000	0.5063
T3	2	Climbing Ladder (Af)	402.00 - 422.00	0.6000	0.5008
T3	5	HJ8-50B (3 AIR)	402.00 - 422.00	1.0000	0.5008
T3	7	7/8	402.00 - 422.00	0.6000	0.5008
T3	9	1 1/4	402.00 - 422.00	0.6000	0.5008
T4	2	Climbing Ladder (Af)	382.00 - 402.00	0.6000	0.4996
T4	5	HJ8-50B (3 AIR)	382.00 - 402.00	1.0000	0.4996
T4	7	7/8	382.00 - 402.00	0.6000	0.4996
T4	9	1 1/4	382.00 - 402.00	0.6000	0.4996
T5	2	Climbing Ladder (Af)	362.00 - 382.00	0.6000	0.5078
T5	5	HJ8-50B (3 AIR)	362.00 - 382.00	1.0000	0.5078
T5	7	7/8	362.00 - 382.00	0.6000	0.5078
T5	9	1 1/4	362.00 - 382.00	0.6000	0.5078
T6	2	Climbing Ladder (Af)	342.00 - 362.00	0.6000	0.5019
T6	5	HJ8-50B (3 AIR)	342.00 - 362.00	1.0000	0.5019
T6	7	7/8	342.00 - 362.00	0.6000	0.5019
T6	9	1 1/4	342.00 - 362.00	0.6000	0.5019

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T6	11	LDF4.5-50 (5/8 FOAM)	342.00 - 353.00	0.6000	0.5019
T7	2	Climbing Ladder (Af)	322.00 - 342.00	0.6000	0.5005
T7	5	HJ8-50B (3 AIR)	322.00 - 342.00	1.0000	0.5005
T7	7	7/8	322.00 - 342.00	0.6000	0.5005
T7	9	1 1/4	322.00 - 342.00	0.6000	0.5005
T7	11	LDF4.5-50 (5/8 FOAM)	322.00 - 342.00	0.6000	0.5005
T7	13	7/8	322.00 - 340.00	0.6000	0.5005
T8	2	Climbing Ladder (Af)	302.00 - 322.00	0.6000	0.4847
T8	5	HJ8-50B (3 AIR)	302.00 - 322.00	1.0000	0.4847
T8	7	7/8	302.00 - 322.00	0.6000	0.4847
T8	9	1 1/4	302.00 - 322.00	0.6000	0.4847
T8	11	LDF4.5-50 (5/8 FOAM)	302.00 - 322.00	0.6000	0.4847
T8	13	7/8	302.00 - 322.00	0.6000	0.4847
T8	15	1 1/4	302.00 - 305.00	0.6000	0.4847
T9	2	Climbing Ladder (Af)	282.00 - 302.00	0.6000	0.4977
T9	5	HJ8-50B (3 AIR)	282.00 - 302.00	1.0000	0.4977
T9	7	7/8	282.00 - 302.00	0.6000	0.4977
T9	9	1 1/4	282.00 - 302.00	0.6000	0.4977
T9	11	LDF4.5-50 (5/8 FOAM)	282.00 - 302.00	0.6000	0.4977
T9	13	7/8	282.00 - 302.00	0.6000	0.4977
T9	15	1 1/4	282.00 - 302.00	0.6000	0.4977
T10	2	Climbing Ladder (Af)	262.00 - 282.00	0.6000	0.4787
T10	5	HJ8-50B (3 AIR)	262.00 - 282.00	1.0000	0.4787
T10	7	7/8	262.00 - 282.00	0.6000	0.4787
T10	9	1 1/4	262.00 - 282.00	0.6000	0.4787
T10	11	LDF4.5-50 (5/8 FOAM)	262.00 - 282.00	0.6000	0.4787
T10	13	7/8	262.00 - 282.00	0.6000	0.4787
T10	15	1 1/4	262.00 - 282.00	0.6000	0.4787
T10	17	1 5/8	262.00 - 280.00	0.6000	0.4787
T10	18	1 5/8	262.00 - 280.00	0.6000	0.4787
T10	19	1 5/8	262.00 - 280.00	0.6000	0.4787
T11	2	Climbing Ladder (Af)	242.00 - 262.00	0.6000	0.4812
T11	5	HJ8-50B (3 AIR)	242.00 - 262.00	1.0000	0.4812
T11	7	7/8	242.00 - 262.00	0.6000	0.4812
T11	9	1 1/4	242.00 - 262.00	0.6000	0.4812
T11	11	LDF4.5-50 (5/8 FOAM)	242.00 - 262.00	0.6000	0.4812
T11	13	7/8	242.00 - 262.00	0.6000	0.4812
T11	15	1 1/4	242.00 - 262.00	0.6000	0.4812
T11	17	1 5/8	242.00 - 262.00	0.6000	0.4812
T11	18	1 5/8	242.00 - 262.00	0.6000	0.4812
T11	19	1 5/8	242.00 - 262.00	0.6000	0.4812
T11	22	1 5/8	242.00 - 257.00	0.6000	0.4812
T11	23	1 1/4	242.00 - 257.00	0.6000	0.4812
T11	25	7/8	242.00 - 248.00	0.6000	0.4812
T12	2	Climbing Ladder (Af)	222.00 - 242.00	0.6000	0.4820
T12	5	HJ8-50B (3 AIR)	222.00 - 242.00	1.0000	0.4820
T12	7	7/8	222.00 - 242.00	0.6000	0.4820
T12	9	1 1/4	222.00 - 242.00	0.6000	0.4820
T12	11	LDF4.5-50 (5/8 FOAM)	222.00 - 242.00	0.6000	0.4820
T12	13	7/8	222.00 - 242.00	0.6000	0.4820
T12	15	1 1/4	222.00 - 242.00	0.6000	0.4820
T12	17	1 5/8	222.00 - 242.00	0.6000	0.4820
T12	18	1 5/8	222.00 - 242.00	0.6000	0.4820
T12	19	1 5/8	222.00 - 242.00	0.6000	0.4820
T12	22	1 5/8	222.00 - 242.00	0.6000	0.4820
T12	23	1 1/4	222.00 - 242.00	0.6000	0.4820
T12	25	7/8	222.00 - 242.00	0.6000	0.4820
T12	27	7/8	222.00 - 242.00	0.6000	0.4820
T13	2	Climbing Ladder (Af)	202.00 - 222.00	0.6000	0.4756
T13	5	HJ8-50B (3 AIR)	202.00 - 222.00	1.0000	0.4756
T13	7	7/8	202.00 - 222.00	0.6000	0.4756
T13	9	1 1/4	202.00 - 222.00	0.6000	0.4756

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T13	11	LDF4.5-50 (5/8 FOAM)	202.00 - 222.00	0.6000	0.4756
T13	13	7/8	202.00 - 222.00	0.6000	0.4756
T13	15	1 1/4	202.00 - 222.00	0.6000	0.4756
T13	17	1 5/8	202.00 - 222.00	0.6000	0.4756
T13	18	1 5/8	202.00 - 222.00	0.6000	0.4756
T13	19	1 5/8	202.00 - 222.00	0.6000	0.4756
T13	22	1 5/8	202.00 - 222.00	0.6000	0.4756
T13	23	1 1/4	202.00 - 222.00	0.6000	0.4756
T13	25	7/8	202.00 - 222.00	0.6000	0.4756
T13	27	7/8	202.00 - 222.00	0.6000	0.4756
T14	2	Climbing Ladder (Af)	182.00 - 202.00	0.6000	0.4786
T14	5	HJ8-50B (3 AIR)	182.00 - 202.00	1.0000	0.4786
T14	7	7/8	182.00 - 202.00	0.6000	0.4786
T14	9	1 1/4	182.00 - 202.00	0.6000	0.4786
T14	11	LDF4.5-50 (5/8 FOAM)	182.00 - 202.00	0.6000	0.4786
T14	13	7/8	182.00 - 202.00	0.6000	0.4786
T14	15	1 1/4	182.00 - 202.00	0.6000	0.4786
T14	17	1 5/8	182.00 - 202.00	0.6000	0.4786
T14	18	1 5/8	182.00 - 202.00	0.6000	0.4786
T14	19	1 5/8	182.00 - 202.00	0.6000	0.4786
T14	22	1 5/8	182.00 - 202.00	0.6000	0.4786
T14	23	1 1/4	182.00 - 202.00	0.6000	0.4786
T14	25	7/8	182.00 - 202.00	0.6000	0.4786
T14	27	7/8	182.00 - 202.00	0.6000	0.4786
T15	2	Climbing Ladder (Af)	162.00 - 182.00	0.6000	0.4798
T15	5	HJ8-50B (3 AIR)	162.00 - 182.00	1.0000	0.4798
T15	7	7/8	162.00 - 182.00	0.6000	0.4798
T15	9	1 1/4	162.00 - 182.00	0.6000	0.4798
T15	11	LDF4.5-50 (5/8 FOAM)	162.00 - 182.00	0.6000	0.4798
T15	13	7/8	162.00 - 182.00	0.6000	0.4798
T15	15	1 1/4	162.00 - 182.00	0.6000	0.4798
T15	17	1 5/8	162.00 - 182.00	0.6000	0.4798
T15	18	1 5/8	162.00 - 182.00	0.6000	0.4798
T15	19	1 5/8	162.00 - 182.00	0.6000	0.4798
T15	22	1 5/8	162.00 - 182.00	0.6000	0.4798
T15	23	1 1/4	162.00 - 182.00	0.6000	0.4798
T15	25	7/8	162.00 - 182.00	0.6000	0.4798
T15	27	7/8	162.00 - 182.00	0.6000	0.4798
T16	2	Climbing Ladder (Af)	142.00 - 162.00	0.6000	0.4797
T16	5	HJ8-50B (3 AIR)	142.00 - 162.00	1.0000	0.4797
T16	7	7/8	142.00 - 162.00	0.6000	0.4797
T16	9	1 1/4	142.00 - 162.00	0.6000	0.4797
T16	11	LDF4.5-50 (5/8 FOAM)	142.00 - 162.00	0.6000	0.4797
T16	13	7/8	142.00 - 162.00	0.6000	0.4797
T16	15	1 1/4	142.00 - 162.00	0.6000	0.4797
T16	17	1 5/8	142.00 - 162.00	0.6000	0.4797
T16	18	1 5/8	142.00 - 162.00	0.6000	0.4797
T16	19	1 5/8	142.00 - 162.00	0.6000	0.4797
T16	22	1 5/8	142.00 - 162.00	0.6000	0.4797
T16	23	1 1/4	142.00 - 162.00	0.6000	0.4797
T16	25	7/8	142.00 - 162.00	0.6000	0.4797
T16	27	7/8	142.00 - 162.00	0.6000	0.4797
T17	2	Climbing Ladder (Af)	122.00 - 142.00	0.6000	0.4833
T17	5	HJ8-50B (3 AIR)	122.00 - 142.00	1.0000	0.4833
T17	7	7/8	122.00 - 142.00	0.6000	0.4833
T17	9	1 1/4	122.00 - 142.00	0.6000	0.4833
T17	11	LDF4.5-50 (5/8 FOAM)	122.00 - 142.00	0.6000	0.4833
T17	13	7/8	122.00 - 142.00	0.6000	0.4833
T17	15	1 1/4	122.00 - 142.00	0.6000	0.4833
T17	17	1 5/8	122.00 - 142.00	0.6000	0.4833
T17	18	1 5/8	122.00 - 142.00	0.6000	0.4833
T17	19	1 5/8	122.00 - 142.00	0.6000	0.4833

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T17	22	1 5/8	122.00 - 142.00	0.6000	0.4833
T17	23	1 1/4	122.00 - 142.00	0.6000	0.4833
T17	25	7/8	122.00 - 142.00	0.6000	0.4833
T17	27	7/8	122.00 - 142.00	0.6000	0.4833
T17	29	7/8	122.00 - 140.00	0.6000	0.4833
T17	31	7/8	122.00 - 125.00	0.6000	0.4833
T18	2	Climbing Ladder (Af)	102.00 - 122.00	0.6000	0.4858
T18	5	HJ8-50B (3 AIR)	102.00 - 122.00	1.0000	0.4858
T18	7	7/8	102.00 - 122.00	0.6000	0.4858
T18	9	1 1/4	102.00 - 122.00	0.6000	0.4858
T18	11	LDF4.5-50 (5/8 FOAM)	102.00 - 122.00	0.6000	0.4858
T18	13	7/8	102.00 - 122.00	0.6000	0.4858
T18	15	1 1/4	102.00 - 122.00	0.6000	0.4858
T18	17	1 5/8	102.00 - 122.00	0.6000	0.4858
T18	18	1 5/8	102.00 - 122.00	0.6000	0.4858
T18	19	1 5/8	102.00 - 122.00	0.6000	0.4858
T18	22	1 5/8	102.00 - 122.00	0.6000	0.4858
T18	23	1 1/4	102.00 - 122.00	0.6000	0.4858
T18	25	7/8	102.00 - 122.00	0.6000	0.4858
T18	27	7/8	102.00 - 122.00	0.6000	0.4858
T18	29	7/8	102.00 - 122.00	0.6000	0.4858
T18	31	7/8	102.00 - 122.00	0.6000	0.4858
T18	33	7/8	102.00 - 108.00	0.6000	0.4858
T19	2	Climbing Ladder (Af)	82.00 - 102.00	0.6000	0.4874
T19	5	HJ8-50B (3 AIR)	82.00 - 102.00	1.0000	0.4874
T19	7	7/8	82.00 - 102.00	0.6000	0.4874
T19	9	1 1/4	82.00 - 102.00	0.6000	0.4874
T19	11	LDF4.5-50 (5/8 FOAM)	82.00 - 102.00	0.6000	0.4874
T19	13	7/8	82.00 - 102.00	0.6000	0.4874
T19	15	1 1/4	82.00 - 102.00	0.6000	0.4874
T19	17	1 5/8	82.00 - 102.00	0.6000	0.4874
T19	18	1 5/8	82.00 - 102.00	0.6000	0.4874
T19	19	1 5/8	82.00 - 102.00	0.6000	0.4874
T19	22	1 5/8	82.00 - 102.00	0.6000	0.4874
T19	23	1 1/4	82.00 - 102.00	0.6000	0.4874
T19	25	7/8	82.00 - 102.00	0.6000	0.4874
T19	27	7/8	82.00 - 102.00	0.6000	0.4874
T19	29	7/8	82.00 - 102.00	0.6000	0.4874
T19	31	7/8	82.00 - 102.00	0.6000	0.4874
T19	33	7/8	82.00 - 102.00	0.6000	0.4874
T20	2	Climbing Ladder (Af)	62.00 - 82.00	0.6000	0.4935
T20	5	HJ8-50B (3 AIR)	62.00 - 82.00	1.0000	0.4935
T20	7	7/8	62.00 - 82.00	0.6000	0.4935
T20	9	1 1/4	62.00 - 82.00	0.6000	0.4935
T20	11	LDF4.5-50 (5/8 FOAM)	62.00 - 82.00	0.6000	0.4935
T20	13	7/8	62.00 - 82.00	0.6000	0.4935
T20	15	1 1/4	62.00 - 82.00	0.6000	0.4935
T20	17	1 5/8	62.00 - 82.00	0.6000	0.4935
T20	18	1 5/8	62.00 - 82.00	0.6000	0.4935
T20	19	1 5/8	62.00 - 82.00	0.6000	0.4935
T20	22	1 5/8	62.00 - 82.00	0.6000	0.4935
T20	23	1 1/4	62.00 - 82.00	0.6000	0.4935
T20	25	7/8	62.00 - 82.00	0.6000	0.4935
T20	27	7/8	62.00 - 82.00	0.6000	0.4935
T20	29	7/8	62.00 - 82.00	0.6000	0.4935
T20	31	7/8	62.00 - 82.00	0.6000	0.4935
T20	33	7/8	62.00 - 82.00	0.6000	0.4935
T21	2	Climbing Ladder (Af)	42.00 - 62.00	0.6000	0.4982
T21	5	HJ8-50B (3 AIR)	42.00 - 62.00	1.0000	0.4982
T21	7	7/8	42.00 - 62.00	0.6000	0.4982
T21	9	1 1/4	42.00 - 62.00	0.6000	0.4982
T21	11	LDF4.5-50 (5/8 FOAM)	42.00 - 62.00	0.6000	0.4982

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T21	13	7/8	42.00 - 62.00	0.6000	0.4982
T21	15	1 1/4	42.00 - 62.00	0.6000	0.4982
T21	17	1 5/8	42.00 - 62.00	0.6000	0.4982
T21	18	1 5/8	42.00 - 62.00	0.6000	0.4982
T21	19	1 5/8	42.00 - 62.00	0.6000	0.4982
T21	22	1 5/8	42.00 - 62.00	0.6000	0.4982
T21	23	1 1/4	42.00 - 62.00	0.6000	0.4982
T21	25	7/8	42.00 - 62.00	0.6000	0.4982
T21	27	7/8	42.00 - 62.00	0.6000	0.4982
T21	29	7/8	42.00 - 62.00	0.6000	0.4982
T21	31	7/8	42.00 - 62.00	0.6000	0.4982
T21	33	7/8	42.00 - 62.00	0.6000	0.4982
T22	2	Climbing Ladder (Af)	22.00 - 42.00	0.6000	0.5102
T22	5	HJ8-50B (3 AIR)	22.00 - 42.00	0.6000	0.5102
T22	7	7/8	22.00 - 42.00	0.6000	0.5102
T22	9	1 1/4	22.00 - 42.00	0.6000	0.5102
T22	11	LDF4.5-50 (5/8 FOAM)	22.00 - 42.00	0.6000	0.5102
T22	13	7/8	22.00 - 42.00	0.6000	0.5102
T22	15	1 1/4	22.00 - 42.00	0.6000	0.5102
T22	17	1 5/8	22.00 - 42.00	0.6000	0.5102
T22	18	1 5/8	22.00 - 42.00	0.6000	0.5102
T22	19	1 5/8	22.00 - 42.00	0.6000	0.5102
T22	22	1 5/8	22.00 - 42.00	0.6000	0.5102
T22	23	1 1/4	22.00 - 42.00	0.6000	0.5102
T22	25	7/8	22.00 - 42.00	0.6000	0.5102
T22	27	7/8	22.00 - 42.00	0.6000	0.5102
T22	29	7/8	22.00 - 42.00	0.6000	0.5102
T22	31	7/8	22.00 - 42.00	0.6000	0.5102
T22	33	7/8	22.00 - 42.00	0.6000	0.5102
T23	2	Climbing Ladder (Af)	2.00 - 22.00	0.6000	0.5318
T23	5	HJ8-50B (3 AIR)	2.00 - 22.00	0.6000	0.5318
T23	7	7/8	2.00 - 22.00	0.6000	0.5318
T23	9	1 1/4	2.00 - 22.00	0.6000	0.5318
T23	11	LDF4.5-50 (5/8 FOAM)	2.00 - 22.00	0.6000	0.5318
T23	13	7/8	2.00 - 22.00	0.6000	0.5318
T23	15	1 1/4	2.00 - 22.00	0.6000	0.5318
T23	17	1 5/8	2.00 - 22.00	0.6000	0.5318
T23	18	1 5/8	2.00 - 22.00	0.6000	0.5318
T23	19	1 5/8	2.00 - 22.00	0.6000	0.5318
T23	22	1 5/8	2.00 - 22.00	0.6000	0.5318
T23	23	1 1/4	2.00 - 22.00	0.6000	0.5318
T23	25	7/8	2.00 - 22.00	0.6000	0.5318
T23	27	7/8	2.00 - 22.00	0.6000	0.5318
T23	29	7/8	2.00 - 22.00	0.6000	0.5318
T23	31	7/8	2.00 - 22.00	0.6000	0.5318
T23	33	7/8	2.00 - 22.00	0.6000	0.5318

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
**********									
DB436-C	C	From Face	3.00	0.0000	460.00	No Ice	0.45	0.45	7.00
(Dipole)			0.00			1/2" Ice	0.81	0.81	9.10
			0.00			1" Ice	1.17	1.17	11.20
FMH-2AC-Radomes	C	From Face	1.00	0.0000	479.00	No Ice	19.00	19.00	350.00
(FM Radio)			0.00			1/2" Ice	23.00	23.00	660.00
			0.00			1" Ice	27.00	27.00	970.00
**********									
Work Platform w/ handrail	B	From Face	2.00	0.0000	446.00	No Ice	6.30	3.00	270.00
(tower)			0.00			1/2" Ice	9.50	4.50	380.00
			0.00			1" Ice	12.70	6.00	490.00
**********									
**********									
5' Standoff	B	From Leg	2.50	0.0000	340.00	No Ice	3.26	3.26	60.00
(1.5'x4.5' grid dish)			0.00			1/2" Ice	5.89	5.89	107.00
			0.00			1" Ice	8.52	8.52	154.00
**********									
4' Standoff	B	From Leg	2.00	0.0000	305.00	No Ice	2.72	2.72	50.00
			0.00			1/2" Ice	4.91	4.91	89.00
			0.00			1" Ice	7.10	7.10	128.00
5' Yagi	B	From Leg	4.00	0.0000	305.00	No Ice	2.60	2.60	30.00
			0.00			1/2" Ice	6.78	6.78	58.70
			5.00			1" Ice	10.98	10.98	113.07
**********									
APX16DWV-16DWVS-C-A20	A	From Leg	1.00	0.0000	280.00	No Ice	6.78	3.57	62.60
w/Mount Pipe			0.00			1/2" Ice	7.26	4.41	111.44
			0.00			1" Ice	7.73	5.13	166.82
APX16DWV-16DWVS-C-A20	B	From Leg	1.00	0.0000	280.00	No Ice	6.78	3.57	62.60
w/Mount Pipe			0.00			1/2" Ice	7.26	4.41	111.44
			0.00			1" Ice	7.73	5.13	166.82
APX16DWV-16DWVS-C-A20	C	From Leg	1.00	0.0000	280.00	No Ice	6.78	3.57	62.60
w/Mount Pipe			0.00			1/2" Ice	7.26	4.41	111.44
			0.00			1" Ice	7.73	5.13	166.82
APXVARR24_43-C-NA20	A	From Leg	1.00	0.0000	280.00	No Ice	17.15	10.64	118.50
w/Mount Pipe			6.00			1/2" Ice	17.77	12.07	236.82
			0.00			1" Ice	18.40	13.35	365.46
APXVARR24_43-C-NA20	B	From Leg	1.00	0.0000	280.00	No Ice	17.15	10.64	118.50
w/Mount Pipe			6.00			1/2" Ice	17.77	12.07	236.82
			0.00			1" Ice	18.40	13.35	365.46
APXVARR24_43-C-NA20	C	From Leg	1.00	0.0000	280.00	No Ice	17.15	10.64	118.50
w/Mount Pipe			6.00			1/2" Ice	17.77	12.07	236.82
			0.00			1" Ice	18.40	13.35	365.46
RRUS 4449	A	From Leg	1.00	0.0000	280.00	No Ice	1.98	1.41	70.00
			6.00			1/2" Ice	2.16	1.57	88.55
			0.00			1" Ice	2.34	1.73	109.93
RRUS 4449	B	From Leg	1.00	0.0000	280.00	No Ice	1.98	1.41	70.00
			6.00			1/2" Ice	2.16	1.57	88.55
			0.00			1" Ice	2.34	1.73	109.93
RRUS 4449	C	From Leg	1.00	0.0000	280.00	No Ice	1.98	1.41	70.00
			6.00			1/2" Ice	2.16	1.57	88.55
			0.00			1" Ice	2.34	1.73	109.93
KRY 112 144/1	A	From Leg	1.00	0.0000	280.00	No Ice	0.35	0.14	11.00
			0.00			1/2" Ice	0.43	0.20	14.09
			0.00			1" Ice	0.51	0.26	18.39
KRY 112 144/1	B	From Leg	1.00	0.0000	280.00	No Ice	0.35	0.14	11.00
			0.00			1/2" Ice	0.43	0.20	14.09
			0.00			1" Ice	0.51	0.26	18.39

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
KRY 112 144/1	C	From Leg	1.00	0.0000	280.00	No Ice	0.35	0.14	11.00
			0.00			1/2" Ice	0.43	0.20	14.09
			0.00			1" Ice	0.51	0.26	18.39
KRY 112 89/4	A	From Leg	1.00	0.0000	280.00	No Ice	0.56	0.37	15.43
			0.00			1/2" Ice	0.66	0.45	20.51
			0.00			1" Ice	0.77	0.54	27.15
KRY 112 89/4	B	From Leg	1.00	0.0000	280.00	No Ice	0.56	0.37	15.43
			0.00			1/2" Ice	0.66	0.45	20.51
			0.00			1" Ice	0.77	0.54	27.15
KRY 112 89/4	C	From Leg	1.00	0.0000	280.00	No Ice	0.56	0.37	15.43
			0.00			1/2" Ice	0.66	0.45	20.51
			0.00			1" Ice	0.77	0.54	27.15
T-Arm Mount [TA 702-3] (T-Mobile)	C	None		0.0000	280.00	No Ice	5.64	5.64	339.00
						1/2" Ice	6.55	6.55	429.00
						1" Ice	7.46	7.46	519.00
**********									
AAHC	A	From Leg	4.00	0.0000	257.00	No Ice	4.20	2.07	103.70
			-6.00			1/2" Ice	4.46	2.26	136.01
			0.00			1" Ice	4.72	2.46	172.07
AAHC	B	From Leg	4.00	0.0000	257.00	No Ice	4.20	2.07	103.70
			-6.00			1/2" Ice	4.46	2.26	136.01
			0.00			1" Ice	4.72	2.46	172.07
AAHC	C	From Leg	4.00	0.0000	257.00	No Ice	4.20	2.07	103.70
			-6.00			1/2" Ice	4.46	2.26	136.01
			0.00			1" Ice	4.72	2.46	172.07
NNVV-65B-R4	A	From Leg	4.00	0.0000	257.00	No Ice	12.27	5.75	77.40
			3.00			1/2" Ice	12.77	6.21	149.54
			0.00			1" Ice	13.27	6.67	228.32
NNVV-65B-R4	B	From Leg	4.00	0.0000	257.00	No Ice	12.27	5.75	77.40
			3.00			1/2" Ice	12.77	6.21	149.54
			0.00			1" Ice	13.27	6.67	228.32
NNVV-65B-R4	C	From Leg	4.00	0.0000	257.00	No Ice	12.27	5.75	77.40
			3.00			1/2" Ice	12.77	6.21	149.54
			0.00			1" Ice	13.27	6.67	228.32
1900MHz 4x45W RRH	A	From Leg	4.00	0.0000	257.00	No Ice	2.32	2.24	60.00
			-3.00			1/2" Ice	2.53	2.44	83.12
			0.00			1" Ice	2.74	2.65	109.48
1900MHz 4x45W RRH	B	From Leg	4.00	0.0000	257.00	No Ice	2.32	2.24	60.00
			-3.00			1/2" Ice	2.53	2.44	83.12
			0.00			1" Ice	2.74	2.65	109.48
1900MHz 4x45W RRH	C	From Leg	4.00	0.0000	257.00	No Ice	2.32	2.24	60.00
			-3.00			1/2" Ice	2.53	2.44	83.12
			0.00			1" Ice	2.74	2.65	109.48
800MHz 2x50W RRH	A	From Leg	1.00	0.0000	257.00	No Ice	2.06	1.93	64.00
			-3.00			1/2" Ice	2.24	2.11	86.12
			0.00			1" Ice	2.43	2.29	111.30
800MHz 2x50W RRH	B	From Leg	1.00	0.0000	257.00	No Ice	2.06	1.93	64.00
			-3.00			1/2" Ice	2.24	2.11	86.12
			0.00			1" Ice	2.43	2.29	111.30
800MHz 2x50W RRH	C	From Leg	1.00	0.0000	257.00	No Ice	2.06	1.93	64.00
			-3.00			1/2" Ice	2.24	2.11	86.12
			0.00			1" Ice	2.43	2.29	111.30
(4) 8'x2" Pipe Mount	B	From Leg	0.00	0.0000	257.00	No Ice	1.90	1.90	30.00
			0.00			1/2" Ice	2.73	2.73	44.34
			0.00			1" Ice	3.40	3.40	63.96
(4) 8'x2" Pipe Mount	C	From Leg	0.00	0.0000	257.00	No Ice	1.90	1.90	30.00
			0.00			1/2" Ice	2.73	2.73	44.34

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00			1" Ice	3.40	3.40	63.96
Sector Mount [SM 303-1] (Sprint)	A	From Leg	4.00 0.00 0.00	0.0000	257.00	No Ice 1/2" Ice 1" Ice	18.56 26.00 33.44	20.17 28.95 37.73	626.50 901.48 1176.45
SitePro1 VFA12-HD-S (1) (Sprint)	B	From Leg	4.00 0.00 0.00	0.0000	257.00	No Ice 1/2" Ice 1" Ice	12.50 18.50 24.60	7.00 11.30 15.30	578.00 686.00 846.00
SitePro1 VFA12-HD-S (1) (Sprint)	C	From Leg	4.00 0.00 0.00	0.0000	257.00	No Ice 1/2" Ice 1" Ice	12.50 18.50 24.60	7.00 11.30 15.30	578.00 686.00 846.00
**********									
Large Beacon	A	From Face	1.00 0.00 0.00	0.0000	239.00	No Ice 1/2" Ice 1" Ice	1.56 2.41 2.64	1.56 2.41 2.64	28.00 58.19 91.58
Large Beacon	B	From Face	1.00 0.00 0.00	0.0000	239.00	No Ice 1/2" Ice 1" Ice	1.56 2.41 2.64	1.56 2.41 2.64	28.00 58.19 91.58
**********									
4' Standoff	C	From Leg	2.00 0.00 0.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	2.72 4.91 7.10	2.72 4.91 7.10	50.00 89.00 128.00
10' Dipole	C	From Leg	4.00 0.00 5.00	0.0000	140.00	No Ice 1/2" Ice 1" Ice	3.00 4.00 5.00	3.00 4.00 5.00	30.00 55.00 85.00
**********									
4' Standoff	C	From Leg	2.00 0.00 0.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	2.72 4.91 7.10	2.72 4.91 7.10	50.00 89.00 128.00
10' Dipole	C	From Leg	4.00 0.00 5.00	0.0000	125.00	No Ice 1/2" Ice 1" Ice	3.00 4.00 5.00	3.00 4.00 5.00	30.00 55.00 85.00
********** **********									
4' Standoff	C	From Leg	2.00 0.00 0.00	0.0000	108.00	No Ice 1/2" Ice 1" Ice	2.72 4.91 7.10	2.72 4.91 7.10	50.00 89.00 128.00
10' Dipole	C	From Leg	4.00 0.00 5.00	0.0000	108.00	No Ice 1/2" Ice 1" Ice	3.00 4.00 5.00	3.00 4.00 5.00	30.00 55.00 85.00
********** **********									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
GP6F-21A	A	Grid	From Leg	2.00 0.00	0.0000		438.00	6.00	No Ice 1/2" Ice	28.30 29.05	198.00 347.13

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
				0.00					1" Ice	29.80	496.25
P3F-52-N7A	C	Grid	From	1.00	0.0000		353.00	3.00	No Ice	5.70	105.00
(Wine AM)			Leg	0.00					1/2" Ice	7.46	143.31
				0.00					1" Ice	9.23	181.62
DB496-A	B	Grid	From	5.00	0.0000		340.00	1.13	No Ice	1.30	9.00
(Wine AM)			Leg	0.00					1/2" Ice	1.15	14.88
				0.00					1" Ice	0.00	20.77
GP8F-21A	A	Grid	From	2.00	0.0000		248.00	8.00	No Ice	50.30	282.00
			Leg	0.00					1/2" Ice	51.29	545.30
				0.00					1" Ice	52.28	808.60
GP8F-21A	C	Grid	From	2.00	0.0000		242.00	8.00	No Ice	50.30	282.00
			Leg	0.00					1/2" Ice	51.29	545.30
				0.00					1" Ice	52.28	808.60

Force Totals (Does not include forces on guys)

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Torques lb-ft
Leg Weight	28848.80			
Bracing Weight	12922.83			
Total Member Self-Weight	41771.63			
Guy Weight	11498.55			
Total Weight	71477.74			
Wind 0 deg - No Ice		158.47	-65567.83	-10096.14
Wind 30 deg - No Ice		30365.02	-52569.45	-2749.13
Wind 60 deg - No Ice		51395.34	-29863.81	423.40
Wind 90 deg - No Ice		61922.66	-235.89	4724.47
Wind 120 deg - No Ice		59359.02	34188.55	12100.61
Wind 150 deg - No Ice		33445.72	58130.07	14904.72
Wind 180 deg - No Ice		-213.80	62167.71	10042.57
Wind 210 deg - No Ice		-30488.91	52498.05	2852.93
Wind 240 deg - No Ice		-54330.95	31468.59	-347.63
Wind 270 deg - No Ice		-61922.39	21.08	-4491.83
Wind 300 deg - No Ice		-56568.05	-32603.40	-12122.81
Wind 330 deg - No Ice		-33541.42	-58074.38	-15241.16
Member Ice	58869.82			
Guy Ice	48884.79			
Total Weight Ice	266596.20			
Wind 0 deg - Ice		911.48	-43662.20	-5960.50
Wind 30 deg - Ice		21574.92	-36156.49	-2315.27
Wind 60 deg - Ice		35882.52	-20806.91	213.92
Wind 90 deg - Ice		41944.08	-592.80	3414.98
Wind 120 deg - Ice		37978.25	22087.11	9216.94
Wind 150 deg - Ice		21244.48	38071.23	11817.17
Wind 180 deg - Ice		-148.29	43116.32	7643.53
Wind 210 deg - Ice		-20606.98	36814.03	1700.36
Wind 240 deg - Ice		-36013.09	22005.01	-2439.52
Wind 270 deg - Ice		-41632.13	50.98	-5283.99
Wind 300 deg - Ice		-36940.60	-21246.56	-8674.37
Wind 330 deg - Ice		-21631.44	-37388.92	-9333.26
Total Weight	71477.74			
Wind 0 deg - Service		65.96	-27291.50	-4202.35
Wind 30 deg - Service		12638.93	-21881.14	-1144.28
Wind 60 deg - Service		21392.44	-12430.31	176.23

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Torques lb-ft
Wind 90 deg - Service		25774.26	-98.18	1966.48
Wind 120 deg - Service		24707.19	14230.41	5036.67
Wind 150 deg - Service		13921.22	24195.66	6203.84
Wind 180 deg - Service		-88.99	25876.26	4180.05
Wind 210 deg - Service		-12690.50	21851.42	1187.49
Wind 240 deg - Service		-22614.34	13098.27	-144.69
Wind 270 deg - Service		-25774.15	8.77	-1869.65
Wind 300 deg - Service		-23545.49	-13570.61	-5045.92
Wind 330 deg - Service		-13961.05	-24172.48	-6343.88

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy
10	1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy
14	1.2 Dead+1.0 Ice+1.0 Temp+Guy
15	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
16	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
17	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
18	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
19	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
20	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
21	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
22	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
23	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
24	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
25	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
26	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
27	Dead+Wind 0 deg - Service+Guy
28	Dead+Wind 30 deg - Service+Guy
29	Dead+Wind 60 deg - Service+Guy
30	Dead+Wind 90 deg - Service+Guy
31	Dead+Wind 120 deg - Service+Guy
32	Dead+Wind 150 deg - Service+Guy
33	Dead+Wind 180 deg - Service+Guy
34	Dead+Wind 210 deg - Service+Guy
35	Dead+Wind 240 deg - Service+Guy
36	Dead+Wind 270 deg - Service+Guy
37	Dead+Wind 300 deg - Service+Guy
38	Dead+Wind 330 deg - Service+Guy

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
L1	495 - 454	Pole	Max Tension	5	0.71	-9.05	13.02
			Max. Compression	14	-5795.18	-13.17	-2652.11
			Max. Mx	5	-3050.27	-83763.29	-1407.49
			Max. My	8	-3059.81	282.43	-84300.39
			Max. Vy	11	-3698.31	83754.51	-1328.58
			Max. Vx	2	-3715.96	90.72	83383.12
			Max. Torque	11			2541.99
T1	454 - 442	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-31369.69	73.02	137.82
			Max. Mx	6	-27945.68	-198.87	-27.01
			Max. My	2	-29209.65	70.98	171.42
			Max. Vy	6	-208.63	-150.52	-10.82
			Max. Vx	8	-180.43	57.69	-109.65
		Diagonal	Max Tension	6	2295.13	0.00	0.00
			Max. Compression	10	-2839.29	0.00	0.00
			Max. Mx	16	-230.34	-44.68	0.00
			Max. My	19	-112.34	0.00	0.75
			Max. Vy	16	31.59	0.00	0.00
			Max. Vx	19	0.53	0.00	0.00
		Horizontal	Max Tension	2	543.34	0.00	0.00
			Max. Compression	2	-543.34	0.00	0.00
			Max. Mx	14	303.15	-31.19	0.00
			Max. My	20	409.58	0.00	0.00
			Max. Vy	14	31.19	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
		Guy A	Bottom Tension	9	44725.34		
			Top Tension	9	45640.60		
			Top Cable Vert	9	43686.56		
			Top Cable Norm	9	13210.49		
			Top Cable Tan	9	178.50		
			Bot Cable Vert	9	-42041.47		
			Bot Cable Norm	9	15220.30		
			Bot Cable Tan	9	1101.36		
		Guy B	Bottom Tension	13	43800.40		
			Top Tension	13	44716.66		
			Top Cable Vert	13	42812.28		
			Top Cable Norm	13	12909.22		
			Top Cable Tan	13	202.64		
			Bot Cable Vert	13	-41167.19		
			Bot Cable Norm	13	14919.04		
			Bot Cable Tan	13	1077.22		
		Guy C	Bottom Tension	3	44857.09		
			Top Tension	3	45772.19		
			Top Cable Vert	3	43811.05		
			Top Cable Norm	3	13253.51		
			Top Cable Tan	3	174.60		
			Bot Cable Vert	3	-42165.96		
			Bot Cable Norm	3	15263.32		
			Bot Cable Tan	3	1105.27		
		Top Guy Pull-Off	Max Tension	23	0.55	0.00	0.00
			Max. Compression	23	-0.55	0.00	0.00
			Max. Mx	14	0.00	-43.11	0.00
			Max. My	20	0.54	0.00	0.00
			Max. Vy	14	43.11	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
T2	442 - 422	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	10	-32059.57	-159.12	-2.59
			Max. Mx	6	-29550.60	-168.12	-15.20

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. My	2	-29363.29	72.65	152.69
			Max. Vy	6	-585.95	-133.57	-6.86
			Max. Vx	7	-550.14	53.71	-100.71
		Diagonal	Max Tension	7	2521.69	0.00	0.00
			Max. Compression	13	-2760.82	0.00	0.00
			Max. Mx	16	1143.48	-44.65	0.00
			Max. My	19	121.25	0.00	0.75
			Max. Vy	16	31.57	0.00	0.00
			Max. Vx	19	-0.53	0.00	0.00
		Horizontal	Max Tension	4	810.63	0.00	0.00
			Max. Compression	10	-640.27	0.00	0.00
			Max. Mx	14	334.15	-31.16	0.00
			Max. My	20	500.69	0.00	0.00
			Max. Vy	14	31.16	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
T3	422 - 402	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-50220.89	217.47	50.34
			Max. Mx	13	-47741.94	223.45	22.23
			Max. My	2	-22135.57	-54.12	212.35
			Max. Vy	13	-113.65	223.45	22.23
			Max. Vx	2	-117.36	-54.12	212.35
		Diagonal	Max Tension	13	4522.59	0.00	0.00
			Max. Compression	7	-4974.04	0.00	0.00
			Max. Mx	23	1515.66	-44.60	0.00
			Max. My	19	133.93	0.00	0.74
			Max. Vy	23	31.53	0.00	0.00
			Max. Vx	19	-0.52	0.00	0.00
		Horizontal	Max Tension	2	869.85	0.00	0.00
			Max. Compression	2	-869.85	0.00	0.00
			Max. Mx	14	361.85	-31.13	0.00
			Max. My	20	693.38	0.00	0.00
			Max. Vy	14	31.13	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
T4	402 - 382	Leg	Max Tension	8	20049.93	-83.55	-23.78
			Max. Compression	2	-81143.70	-369.03	28.11
			Max. Mx	2	-81143.70	-369.03	28.11
			Max. My	2	-10621.78	-36.80	332.71
			Max. Vy	13	178.03	334.04	70.27
			Max. Vx	2	178.38	-36.81	332.71
		Diagonal	Max Tension	13	6046.37	0.00	0.00
			Max. Compression	7	-6565.48	0.00	0.00
			Max. Mx	16	2415.47	-47.12	0.00
			Max. My	20	1241.56	0.00	0.74
			Max. Vy	16	33.32	0.00	0.00
			Max. Vx	20	-0.52	0.00	0.00
		Horizontal	Max Tension	2	1405.45	0.00	0.00
			Max. Compression	2	-1405.45	0.00	0.00
			Max. Mx	14	648.48	-31.10	0.00
			Max. My	20	1081.67	0.00	0.00
			Max. Vy	14	-31.10	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
		Guy A	Bottom Tension	9	46060.27		
			Top Tension	9	46840.79		
			Top Cable Vert	9	44040.19		
			Top Cable Norm	9	15953.46		
			Top Cable Tan	9	93.10		
			Bot Cable Vert	9	-42551.78		
			Bot Cable Norm	9	17604.06		
			Bot Cable Tan	9	995.63		
		Guy B	Bottom Tension	13	45575.25		
			Top Tension	13	46356.11		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Top Cable Vert	13	43589.30		
			Top Cable Norm	13	15775.01		
			Top Cable Tan	13	105.62		
			Bot Cable Vert	13	-42100.89		
			Bot Cable Norm	13	17425.61		
			Bot Cable Tan	13	983.12		
		Guy C	Bottom Tension	3	46074.45		
			Top Tension	3	46854.98		
			Top Cable Vert	3	44053.41		
			Top Cable Norm	3	15958.62		
			Top Cable Tan	3	93.18		
			Bot Cable Vert	3	-42565.00		
			Bot Cable Norm	3	17609.22		
			Bot Cable Tan	3	995.56		
		Top Guy Pull-Off	Max Tension	13	9639.53	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	2922.33	-43.01	0.00
			Max. My	20	4836.71	0.00	0.00
			Max. Vy	14	43.01	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
T5	382 - 362	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-79043.36	377.34	37.12
			Max. Mx	2	-71478.33	380.59	27.93
			Max. My	2	-53664.18	-162.53	344.14
			Max. Vy	6	-194.23	-359.03	-30.71
			Max. Vx	2	-188.41	-162.53	344.14
		Diagonal	Max Tension	2	2599.24	0.00	0.00
			Max. Compression	6	-3264.85	0.00	0.00
			Max. Mx	23	-323.97	-40.70	0.00
			Max. My	20	-762.87	0.00	0.61
			Max. Vy	23	28.78	0.00	0.00
			Max. Vx	20	-0.43	0.00	0.00
		Horizontal	Max Tension	2	1405.45	0.00	0.00
			Max. Compression	2	-1405.45	0.00	0.00
			Max. Mx	14	674.72	-31.06	0.00
			Max. My	20	1103.18	0.00	0.00
			Max. Vy	14	31.06	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
T6	362 - 342	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	15	-78039.68	-316.82	52.83
			Max. Mx	6	-53618.81	-392.60	-46.15
			Max. My	7	-66926.44	174.45	-358.71
			Max. Vy	10	241.85	388.58	-35.46
			Max. Vx	9	-223.12	-164.96	-329.70
		Diagonal	Max Tension	7	1908.11	0.00	0.00
			Max. Compression	13	-2517.89	0.00	0.00
			Max. Mx	16	129.41	-46.88	0.00
			Max. My	20	-366.04	0.00	0.68
			Max. Vy	16	33.15	0.00	0.00
			Max. Vx	20	0.48	0.00	0.00
		Horizontal	Max Tension	2	1369.07	0.00	0.00
			Max. Compression	2	-1369.07	0.00	0.00
			Max. Mx	14	702.84	-31.03	0.00
			Max. My	20	1198.79	0.00	0.00
			Max. Vy	14	31.03	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
T7	342 - 322	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	19	-90892.18	-243.92	381.79
			Max. Mx	2	-88704.56	548.75	-28.33
			Max. My	2	-82433.42	-228.53	-494.65
			Max. Vy	6	-274.90	-484.31	-102.53

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Vx	2	-283.95	-172.89	406.61
		Diagonal	Max Tension	2	6354.31	0.00	0.00
			Max. Compression	9	-7098.48	0.00	0.00
			Max. Mx	22	717.13	-46.75	0.00
			Max. My	20	-802.94	0.00	0.64
			Max. Vy	22	33.06	0.00	0.00
			Max. Vx	20	-0.45	0.00	0.00
		Horizontal	Max Tension	19	1574.30	0.00	0.00
			Max. Compression	19	-1574.30	0.00	0.00
			Max. Mx	14	945.38	-30.98	0.00
			Max. My	20	1440.55	0.00	0.00
			Max. Vy	14	30.98	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
		Guy A	Bottom Tension	7	38432.18		
			Top Tension	7	38926.46		
			Top Cable Vert	7	35709.38		
			Top Cable Norm	7	15495.41		
			Top Cable Tan	7	34.89		
			Bot Cable Vert	7	-34626.66		
			Bot Cable Norm	7	16656.37		
			Bot Cable Tan	7	769.26		
		Guy B	Bottom Tension	13	38460.39		
			Top Tension	13	38954.63		
			Top Cable Vert	13	35734.87		
			Top Cable Norm	13	15507.45		
			Top Cable Tan	13	33.52		
			Bot Cable Vert	13	-34652.15		
			Bot Cable Norm	13	16668.41		
			Bot Cable Tan	13	770.64		
		Guy C	Bottom Tension	3	37957.20		
			Top Tension	3	38451.84		
			Top Cable Vert	3	35280.40		
			Top Cable Norm	3	15291.68		
			Top Cable Tan	3	43.54		
			Bot Cable Vert	3	-34197.68		
			Bot Cable Norm	3	16452.64		
			Bot Cable Tan	3	760.61		
		Top Guy Pull-Off	Max Tension	7	9575.96	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	2881.84	-42.88	0.00
			Max. My	20	2317.60	0.00	0.00
			Max. Vy	14	-42.88	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
T8	322 - 302	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-97820.73	-300.23	-577.15
			Max. Mx	10	-96696.15	-643.73	-47.84
			Max. My	2	-92842.60	-379.17	608.71
			Max. Vy	2	440.72	624.77	20.69
			Max. Vx	2	515.37	-379.18	608.71
		Diagonal	Max Tension	9	5925.07	0.00	0.00
			Max. Compression	2	-6941.95	0.00	0.00
			Max. Mx	16	-2246.90	-60.95	0.00
			Max. My	20	756.28	0.00	0.78
			Max. Vy	16	-43.10	0.00	0.00
			Max. Vx	20	-0.55	0.00	0.00
		Horizontal	Max Tension	6	1694.30	0.00	0.00
			Max. Compression	6	-1694.30	0.00	0.00
			Max. Mx	14	966.58	-30.93	0.00
			Max. My	20	1411.86	0.00	0.00
			Max. Vy	14	-30.93	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
T9	302 - 282	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	13	-103413.20	-252.20	758.87
			Max. Mx	10	-98267.54	873.98	-85.77
			Max. My	2	-102498.21	-402.25	839.04
			Max. Vy	10	-422.87	873.98	-85.77
			Max. Vx	2	-399.72	-402.25	839.04
		Diagonal	Max Tension	2	3659.67	0.00	0.00
			Max. Compression	9	-4786.29	0.00	0.00
			Max. Mx	22	-2139.02	-46.49	0.00
			Max. My	20	164.63	0.00	0.61
			Max. Vy	22	32.88	0.00	0.00
			Max. Vx	20	-0.43	0.00	0.00
		Horizontal	Max Tension	13	1791.17	0.00	0.00
			Max. Compression	13	-1791.17	0.00	0.00
			Max. Mx	23	1061.00	-30.88	0.00
			Max. My	20	1411.86	0.00	0.00
			Max. Vy	23	30.88	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
T10	282 - 262	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-131787.96	589.17	858.00
			Max. Mx	10	-126964.40	-1052.40	86.70
			Max. My	2	-97770.43	402.79	950.77
			Max. Vy	5	893.57	-945.54	38.93
			Max. Vx	2	-910.72	402.80	950.77
		Diagonal	Max Tension	9	8044.78	0.00	0.00
			Max. Compression	3	-9606.79	0.00	0.00
			Max. Mx	17	-524.34	-60.69	0.00
			Max. My	20	1469.75	0.00	0.80
			Max. Vy	17	42.92	0.00	0.00
			Max. Vx	20	-0.57	0.00	0.00
		Horizontal	Max Tension	6	2282.63	0.00	0.00
			Max. Compression	6	-2282.63	0.00	0.00
			Max. Mx	14	1267.03	-30.81	0.00
			Max. My	20	1595.68	0.00	0.00
			Max. Vy	14	-30.81	0.00	0.00
			Max. Vx	20	0.00	0.00	0.00
		Guy A	Bottom Tension	7	44098.00		
			Top Tension	7	44501.73		
			Top Cable Vert	7	39149.80		
			Top Cable Norm	7	21158.68		
			Top Cable Tan	7	90.10		
			Bot Cable Vert	7	-38192.53		
			Bot Cable Norm	7	22031.98		
			Bot Cable Tan	7	745.56		
		Guy B	Bottom Tension	13	44132.79		
			Top Tension	13	44536.52		
			Top Cable Vert	13	39180.01		
			Top Cable Norm	13	21175.94		
			Top Cable Tan	13	89.72		
			Bot Cable Vert	13	-38222.75		
			Bot Cable Norm	13	22049.23		
			Bot Cable Tan	13	745.17		
		Guy C	Bottom Tension	5	42154.83		
			Top Tension	5	42559.44		
			Top Cable Vert	5	37463.20		
			Top Cable Norm	5	20194.35		
			Top Cable Tan	5	51.90		
			Bot Cable Vert	5	-36505.94		
			Bot Cable Norm	5	21067.65		
			Bot Cable Tan	5	707.35		
		Top Guy Pull-Off	Max Tension	13	13234.10	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	19	5908.12	-42.70	0.00
			Max. My	13	2316.37	0.00	0.00
			Max. Vy	19	-42.70	0.00	0.00
			Max. Vx	13	-0.00	0.00	0.00
T11	262 - 242	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	7	-146354.22	-1139.68	-21.45
			Max. Mx	5	-100619.99	1498.50	57.55
			Max. My	2	-131917.91	566.92	-1250.33
			Max. Vy	11	1976.56	1299.16	47.60
			Max. Vx	2	1601.42	-535.18	1179.95
		Diagonal	Max Tension	3	7792.94	0.00	0.00
			Max. Compression	9	-9502.97	0.00	0.00
			Max. Mx	17	-864.94	-60.58	0.00
			Max. My	20	46.73	0.00	0.83
			Max. Vy	17	42.84	0.00	0.00
			Max. Vx	20	-0.59	0.00	0.00
		Horizontal	Max Tension	12	2801.96	0.00	0.00
			Max. Compression	7	-2534.93	0.00	0.00
			Max. Mx	14	1417.15	-30.74	0.00
			Max. My	7	2534.93	0.00	0.00
			Max. Vy	14	-30.74	0.00	0.00
			Max. Vx	7	-0.00	0.00	0.00
T12	242 - 222	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	7	-139219.60	-926.51	82.89
			Max. Mx	6	-136213.02	1096.15	-47.17
			Max. My	2	-131394.82	-560.96	-1010.33
			Max. Vy	9	1226.10	833.44	88.68
			Max. Vx	8	-1229.72	-295.72	-461.65
		Diagonal	Max Tension	7	9981.67	0.00	0.00
			Max. Compression	9	-11811.34	0.00	0.00
			Max. Mx	21	1700.27	-60.45	0.00
			Max. My	20	-1682.30	0.00	0.84
			Max. Vy	21	42.75	0.00	0.00
			Max. Vx	20	0.60	0.00	0.00
		Horizontal	Max Tension	7	2534.93	0.00	0.00
			Max. Compression	7	-2534.93	0.00	0.00
			Max. Mx	19	1649.53	-30.65	0.00
			Max. My	13	2336.32	0.00	0.00
			Max. Vy	19	30.65	0.00	0.00
			Max. Vx	13	-0.00	0.00	0.00
T13	222 - 202	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	10	-156043.66	-629.38	-1194.12
			Max. Mx	2	-149838.58	-1346.99	38.11
			Max. My	2	-126002.98	385.38	1239.92
			Max. Vy	2	-683.14	-1346.99	38.15
			Max. Vx	2	629.90	385.38	1239.92
		Diagonal	Max Tension	7	11442.28	0.00	0.00
			Max. Compression	13	-13526.38	0.00	0.00
			Max. Mx	21	2363.74	-60.28	0.00
			Max. My	20	-2920.85	0.00	0.84
			Max. Vy	21	42.62	0.00	0.00
			Max. Vx	20	-0.59	0.00	0.00
		Horizontal	Max Tension	10	2702.76	0.00	0.00
			Max. Compression	10	-2702.76	0.00	0.00
			Max. Mx	14	1700.04	-30.54	0.00
			Max. My	7	2120.17	0.00	0.00
			Max. Vy	14	30.54	0.00	0.00
			Max. Vx	7	-0.00	0.00	0.00
		Guy A	Bottom Tension	7	42779.48		
			Top Tension	7	43105.04		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Top Cable Vert	7	37841.43		
			Top Cable Norm	7	20641.06		
			Top Cable Tan	7	131.52		
			Bot Cable Vert	7	-37077.01		
			Bot Cable Norm	7	21329.74		
			Bot Cable Tan	7	649.39		
		Guy B	Bottom Tension	13	42758.54		
			Top Tension	13	43084.11		
			Top Cable Vert	13	37823.25		
			Top Cable Norm	13	20630.68		
			Top Cable Tan	13	131.32		
			Bot Cable Vert	13	-37058.82		
			Bot Cable Norm	13	21319.37		
			Bot Cable Tan	13	649.19		
		Guy C	Bottom Tension	5	39790.09		
			Top Tension	5	40116.64		
			Top Cable Vert	5	35247.07		
			Top Cable Norm	5	19156.78		
			Top Cable Tan	5	78.66		
			Bot Cable Vert	5	-34482.64		
			Bot Cable Norm	5	19845.47		
			Bot Cable Tan	5	596.53		
		Top Guy Pull-Off	Max Tension	7	13119.94	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	19	5963.02	-42.40	0.00
			Max. My	7	2316.58	0.00	0.00
			Max. Vy	19	-42.40	0.00	0.00
			Max. Vx	7	-0.00	0.00	0.00
T14	202 - 182	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	10	-177453.89	806.46	1192.78
			Max. Mx	2	-173843.00	-1437.67	68.02
			Max. My	2	-117841.49	515.81	1266.04
			Max. Vy	2	720.79	-1437.67	68.02
			Max. Vx	2	-635.60	515.81	1266.04
		Diagonal	Max Tension	7	4665.93	0.00	0.00
			Max. Compression	13	-7098.56	0.00	0.00
			Max. Mx	21	-704.83	-60.06	0.00
			Max. My	20	-1175.91	0.00	0.81
			Max. Vy	21	42.47	0.00	0.00
			Max. Vx	20	-0.57	0.00	0.00
		Horizontal	Max Tension	10	3073.59	0.00	0.00
			Max. Compression	10	-3073.59	0.00	0.00
			Max. Mx	14	1762.48	-30.42	0.00
			Max. My	7	2461.86	0.00	0.00
			Max. Vy	14	30.42	0.00	0.00
			Max. Vx	7	-0.00	0.00	0.00
T15	182 - 162	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	10	-224079.02	-488.94	-1622.89
			Max. Mx	2	-221597.92	1634.55	422.86
			Max. My	10	-224079.02	-488.94	-1622.89
			Max. Vy	2	-815.40	-1584.35	73.27
			Max. Vx	10	749.79	-488.94	-1622.89
		Diagonal	Max Tension	13	8055.71	0.00	0.00
			Max. Compression	7	-10989.14	0.00	0.00
			Max. Mx	21	803.71	-59.80	0.00
			Max. My	20	-2836.46	0.00	0.78
			Max. Vy	21	42.28	0.00	0.00
			Max. Vx	20	-0.55	0.00	0.00
		Horizontal	Max Tension	10	3881.16	0.00	0.00
			Max. Compression	10	-3881.16	0.00	0.00
			Max. Mx	14	1819.13	-30.26	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. My	7	3179.80	0.00	0.00
			Max. Vy	14	-30.26	0.00	0.00
			Max. Vx	7	-0.00	0.00	0.00
T16	162 - 142	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	10	-225777.02	917.35	1435.37
			Max. Mx	2	-224728.00	-1713.53	38.16
			Max. My	10	-225649.83	-488.88	-1622.91
			Max. Vy	2	-861.23	-1713.53	38.20
			Max. Vx	10	-779.99	-488.88	-1622.91
		Diagonal	Max Tension	13	6083.36	0.00	0.00
			Max. Compression	11	-8550.82	0.00	0.00
			Max. Mx	21	-4128.09	-59.44	0.00
			Max. My	20	-96.13	0.00	0.74
			Max. Vy	21	42.03	0.00	0.00
			Max. Vx	20	-0.52	0.00	0.00
		Horizontal	Max Tension	10	3910.57	0.00	0.00
			Max. Compression	10	-3910.57	0.00	0.00
			Max. Mx	19	2390.77	-30.07	0.00
			Max. My	7	3232.69	0.00	0.00
			Max. Vy	19	-30.07	0.00	0.00
			Max. Vx	7	-0.00	0.00	0.00
		Guy A	Bottom Tension	7	42475.72		
			Top Tension	7	42724.00		
			Top Cable Vert	7	34625.65		
			Top Cable Norm	7	25027.70		
			Top Cable Tan	7	135.37		
			Bot Cable Vert	7	-33987.80		
			Bot Cable Norm	7	25470.37		
			Bot Cable Tan	7	525.83		
		Guy B	Bottom Tension	13	42438.26		
			Top Tension	13	42686.55		
			Top Cable Vert	13	34595.64		
			Top Cable Norm	13	25005.31		
			Top Cable Tan	13	134.31		
			Bot Cable Vert	13	-33957.78		
			Bot Cable Norm	13	25447.98		
			Bot Cable Tan	13	524.77		
		Guy C	Bottom Tension	5	38200.03		
			Top Tension	5	38449.12		
			Top Cable Vert	5	31198.61		
			Top Cable Norm	5	22471.67		
			Top Cable Tan	5	74.23		
			Bot Cable Vert	5	-30560.75		
			Bot Cable Norm	5	22914.34		
			Bot Cable Tan	5	464.69		
		Top Guy Pull-Off	Max Tension	13	15770.89	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	4131.60	-41.88	0.00
			Max. My	13	2037.19	0.00	0.00
			Max. Vy	14	-41.88	0.00	0.00
			Max. Vx	13	-0.00	0.00	0.00
T17	142 - 122	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	10	-197543.87	-711.88	-1464.79
			Max. Mx	2	-193044.39	-1705.83	86.45
			Max. My	2	-137889.29	651.93	1533.13
			Max. Vy	2	-984.21	-1677.28	69.05
			Max. Vx	2	950.42	672.37	1513.02
		Diagonal	Max Tension	8	2357.32	0.00	0.00
			Max. Compression	13	-5474.90	0.00	0.00
			Max. Mx	22	-1078.13	-59.07	0.00
			Max. My	20	-2287.46	0.00	0.70

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Vy	22	41.77	0.00	0.00
			Max. Vx	20	-0.49	0.00	0.00
		Horizontal	Max Tension	10	3910.57	0.00	0.00
			Max. Compression	10	-3910.57	0.00	0.00
			Max. Mx	17	2418.99	-29.83	0.00
			Max. My	7	3232.69	0.00	0.00
			Max. Vy	17	29.83	0.00	0.00
			Max. Vx	7	-0.00	0.00	0.00
T18	122 - 102	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-209991.52	-1756.74	272.52
			Max. Mx	2	-209991.52	-1756.74	272.52
			Max. My	6	-205045.34	580.98	-1680.74
			Max. Vy	2	-961.88	-1736.93	103.25
			Max. Vx	2	879.23	644.50	1552.72
		Diagonal	Max Tension	12	7263.88	0.00	0.00
			Max. Compression	6	-9655.72	0.00	0.00
			Max. Mx	20	-872.23	-58.60	0.00
			Max. My	20	-3962.69	0.00	0.67
			Max. Vy	20	41.43	0.00	0.00
			Max. Vx	20	-0.47	0.00	0.00
		Horizontal	Max Tension	2	3637.16	0.00	0.00
			Max. Compression	2	-3637.16	0.00	0.00
			Max. Mx	17	2569.98	-29.52	0.00
			Max. My	7	3090.65	0.00	0.00
			Max. Vy	17	29.52	0.00	0.00
			Max. Vx	7	-0.00	0.00	0.00
T19	102 - 82	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-207611.75	-876.17	1556.67
			Max. Mx	2	-204519.05	-1756.74	272.54
			Max. My	6	-207520.28	580.90	-1680.77
			Max. Vy	2	-890.84	-1756.74	272.54
			Max. Vx	6	-809.68	-876.17	1556.67
		Diagonal	Max Tension	7	10069.73	0.00	0.00
			Max. Compression	13	-13372.41	0.00	0.00
			Max. Mx	26	-5275.18	-57.98	0.00
			Max. My	20	-1257.83	0.00	0.60
			Max. Vy	26	41.00	0.00	0.00
			Max. Vx	20	-0.42	0.00	0.00
		Horizontal	Max Tension	6	3595.94	0.00	0.00
			Max. Compression	6	-3595.94	0.00	0.00
			Max. Mx	14	2305.75	-29.12	0.00
			Max. My	7	3178.99	0.00	0.00
			Max. Vy	14	29.12	0.00	0.00
			Max. Vx	7	-0.00	0.00	0.00
		Guy A	Bottom Tension	7	26532.25		
			Top Tension	7	26631.59		
			Top Cable Vert	7	17488.38		
			Top Cable Norm	7	20084.69		
			Top Cable Tan	7	59.11		
			Bot Cable Vert	7	-17163.91		
			Bot Cable Norm	7	20231.04		
			Bot Cable Tan	7	256.10		
		Guy B	Bottom Tension	13	26506.91		
			Top Tension	13	26606.25		
			Top Cable Vert	13	17471.94		
			Top Cable Norm	13	20065.40		
			Top Cable Tan	13	59.82		
			Bot Cable Vert	13	-17147.47		
			Bot Cable Norm	13	20211.75		
			Bot Cable Tan	13	256.81		
		Guy C	Bottom Tension	5	23243.85		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Top Tension	5	23343.50		
			Top Cable Vert	5	15354.75		
			Top Cable Norm	5	17582.66		
			Top Cable Tan	5	25.34		
			Bot Cable Vert	5	-15030.28		
			Bot Cable Norm	5	17729.01		
			Bot Cable Tan	5	222.32		
		Top Guy Pull-Off	Max Tension	7	12955.54	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	23	6679.93	-40.83	0.00
			Max. My	7	1788.95	0.00	0.00
			Max. Vy	23	-40.83	0.00	0.00
			Max. Vx	7	-0.00	0.00	0.00
T20	82 - 62	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-180513.68	1759.02	-21.67
			Max. Mx	6	-180513.68	1759.02	-21.67
			Max. My	6	-179840.86	-885.45	-1506.93
			Max. Vy	6	881.03	-1726.07	28.03
			Max. Vx	2	788.09	831.76	1495.67
		Diagonal	Max Tension	13	6206.65	0.00	0.00
			Max. Compression	7	-9134.26	0.00	0.00
			Max. Mx	19	-2325.61	-57.19	0.00
			Max. My	20	307.85	0.00	0.53
			Max. Vy	19	40.44	0.00	0.00
			Max. Vx	20	-0.38	0.00	0.00
		Horizontal	Max Tension	6	3595.94	0.00	0.00
			Max. Compression	6	-3595.94	0.00	0.00
			Max. Mx	23	2831.36	-28.59	0.00
			Max. My	7	3016.56	0.00	0.00
			Max. Vy	23	28.59	0.00	0.00
			Max. Vx	7	-0.00	0.00	0.00
T21	62 - 42	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-187662.12	1804.20	-37.06
			Max. Mx	6	-187662.12	1804.20	-37.06
			Max. My	2	-179500.12	-801.68	1578.46
			Max. Vy	6	-884.33	-1696.06	73.22
			Max. Vx	6	796.28	-893.49	-1549.66
		Diagonal	Max Tension	13	8735.11	0.00	0.00
			Max. Compression	7	-11671.52	0.00	0.00
			Max. Mx	19	-170.59	-56.04	0.00
			Max. My	20	1467.18	0.00	0.48
			Max. Vy	19	-39.63	0.00	0.00
			Max. Vx	20	-0.34	0.00	0.00
		Horizontal	Max Tension	6	3250.40	0.00	0.00
			Max. Compression	6	-3250.40	0.00	0.00
			Max. Mx	14	2484.88	-27.82	0.00
			Max. My	20	3030.32	0.00	0.00
			Max. Vy	14	27.82	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
		Guy A	Bottom Tension	7	13512.83		
			Top Tension	7	13538.16		
			Top Cable Vert	7	5327.21		
			Top Cable Norm	7	12445.99		
			Top Cable Tan	7	7.47		
			Bot Cable Vert	7	-5209.11		
			Bot Cable Norm	7	12468.10		
			Bot Cable Tan	7	90.96		
		Guy B	Bottom Tension	13	13511.20		
			Top Tension	13	13536.53		
			Top Cable Vert	13	5326.57		
			Top Cable Norm	13	12444.49		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Top Cable Tan	13	7.28		
			Bot Cable Vert	13	-5208.47		
			Bot Cable Norm	13	12466.60		
			Bot Cable Tan	13	90.78		
		Guy C	Bottom Tension	5	11872.89		
			Top Tension	5	11898.29		
			Top Cable Vert	5	4690.83		
			Top Cable Norm	5	10934.60		
			Top Cable Tan	5	3.80		
			Bot Cable Vert	5	-4572.73		
			Bot Cable Norm	5	10956.71		
			Bot Cable Tan	5	79.70		
		Top Guy Pull-Off	Max Tension	13	8375.26	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	25	3108.15	-39.40	0.00
			Max. My	13	1683.47	0.00	0.00
			Max. Vy	25	39.40	0.00	0.00
			Max. Vx	13	-0.00	0.00	0.00
T22	42 - 22	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-193130.48	1855.37	-34.19
			Max. Mx	6	-193130.48	1855.37	-34.19
			Max. My	6	-186437.45	907.75	1595.62
			Max. Vy	6	918.77	-1784.41	62.59
			Max. Vx	6	-824.77	-864.25	-1581.53
		Diagonal	Max Tension	13	7107.50	0.00	0.00
			Max. Compression	7	-10100.62	0.00	0.00
			Max. Mx	19	-2851.89	-54.20	0.00
			Max. My	19	527.16	0.00	0.39
			Max. Vy	19	-38.32	0.00	0.00
			Max. Vx	19	-0.28	0.00	0.00
		Horizontal	Max Tension	6	3345.12	0.00	0.00
			Max. Compression	6	-3345.12	0.00	0.00
			Max. Mx	19	2990.26	-26.63	0.00
			Max. My	20	3108.05	0.00	0.00
			Max. Vy	19	26.63	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
T23	22 - 2	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	6	-193005.14	-871.92	-1578.87
			Max. Mx	6	-192216.07	1849.75	-31.78
			Max. My	6	-175642.74	-448.86	1943.60
			Max. Vy	6	916.87	-1786.25	59.48
			Max. Vx	6	-881.04	-448.86	1943.60
		Diagonal	Max Tension	12	7790.85	0.00	0.00
			Max. Compression	13	-10840.26	0.00	0.00
			Max. Mx	19	3695.49	-50.41	0.00
			Max. My	19	693.07	0.00	0.34
			Max. Vy	19	35.65	0.00	0.00
			Max. Vx	19	0.24	0.00	0.00
		Horizontal	Max Tension	6	3345.12	0.00	0.00
			Max. Compression	6	-3345.12	0.00	0.00
			Max. Mx	14	2590.27	-24.22	0.00
			Max. My	20	3108.05	0.00	0.00
			Max. Vy	14	24.22	0.00	0.00
			Max. Vx	20	-0.00	0.00	0.00
		Base Beam	Max Tension	2	60583.34	-148493.27	988.54
			Max. Compression	6	-167391.94	3065.84	1645.03
			Max. Mx	2	-58420.70	-151596.58	4954.13
			Max. My	7	-50418.54	-135834.35	-8199.13
			Max. Vy	2	-58420.70	-151596.58	4954.13
			Max. Vx	12	2680.76	-113596.65	6926.55

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Guy C @ 148 ft Elev 0 ft Azimuth 240 deg	Max. Vert	23	-4452.68	-916.70	527.70
	Max. H_x	23	-4452.68	-916.70	527.70
	Max. H_z	3	-155208.22	-59067.30	38219.86
	Min. Vert	3	-155208.22	-59067.30	38219.86
	Min. H_x	5	-153601.40	-62114.28	31810.48
	Min. H_z	9	-17250.85	-4328.48	268.67
Guy B @ 148 ft Elev 0 ft Azimuth 120 deg	Max. Vert	19	-4518.12	931.62	537.26
	Max. H_x	11	-153641.39	62152.39	31817.80
	Max. H_z	13	-156142.98	59753.67	38628.17
	Min. Vert	13	-156142.98	59753.67	38628.17
	Min. H_x	19	-4518.12	931.62	537.26
	Min. H_z	7	-17313.63	4331.00	270.41
Guy A @ 148 ft Elev 0 ft Azimuth 0 deg	Max. Vert	15	-4481.49	-0.72	-1062.90
	Max. H_x	10	-138323.98	5565.47	-61559.66
	Max. H_z	15	-4481.49	-0.72	-1062.90
	Min. Vert	7	-156027.79	-3565.30	-71010.79
	Min. H_x	6	-138580.37	-5574.78	-61993.87
	Min. H_z	7	-156027.79	-3565.30	-71010.79
Guy C @ 120 ft Elev 0 ft Azimuth 240 deg	Max. Vert	10	-2652.10	-900.30	519.69
	Max. H_x	10	-2652.10	-900.30	519.69
	Max. H_z	3	-81644.73	-58689.44	35387.36
	Min. Vert	5	-84646.41	-62555.26	34542.16
	Min. H_x	5	-84646.41	-62555.26	34542.16
	Min. H_z	10	-2652.10	-900.30	519.69
Guy B @ 120 ft Elev 0 ft Azimuth 120 deg	Max. Vert	6	-2475.72	788.72	456.00
	Max. H_x	13	-93372.54	68041.21	41040.55
	Max. H_z	13	-93372.54	68041.21	41040.55
	Min. Vert	13	-93372.54	68041.21	41040.55
	Min. H_x	6	-2475.72	788.72	456.00
	Min. H_z	7	-3479.91	1900.17	417.98
Guy A @ 120 ft Elev 0 ft Azimuth 0 deg	Max. Vert	2	-2570.84	-0.53	-979.87
	Max. H_x	10	-71578.52	2038.45	-59484.03
	Max. H_z	2	-2570.84	-0.53	-979.87
	Min. Vert	7	-93437.82	-1522.28	-79499.25
	Min. H_x	6	-81030.93	-2288.66	-68313.79
	Min. H_z	7	-93437.82	-1522.28	-79499.25
Mast	Max. Vert	6	540289.36	2720.41	1573.34
	Max. H_x	6	540289.36	2720.41	1573.34
	Max. H_z	11	473127.94	-776.39	1688.62
	Max. M_x	1	0.00	-16.42	-3.46
	Max. M_z	1	0.00	-16.42	-3.46
	Max. Torsion	13	16382.80	1142.34	-2030.71
	Min. Vert	1	220692.95	-16.42	-3.46

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
	Min. H_x	10	520412.93	-1935.07	1106.31
	Min. H_z	2	530962.93	-18.32	-2623.14
	Min. M_x	1	0.00	-16.42	-3.46
	Min. M_z	1	0.00	-16.42	-3.46
	Min. Torsion	7	-15783.34	2321.22	1.57

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	220692.95	16.42	3.46	0.00	0.00	-56.70
1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy	530962.93	18.32	2623.14	0.00	0.00	-10265.11
1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy	470767.29	1062.13	1358.32	0.00	0.00	-2472.19
1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy	391235.15	1450.21	-814.54	0.00	0.00	218.38
1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy	472228.08	-720.66	-1674.77	0.00	0.00	3698.85
1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy	540289.36	-2720.41	-1573.34	0.00	0.00	11509.69
1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy	489023.80	-2321.22	-1.57	0.00	0.00	15783.34
1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy	395264.55	89.07	1741.72	0.00	0.00	10982.96
1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy	471261.73	1732.11	215.98	0.00	0.00	2116.50
1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy	520412.93	1935.07	-1106.31	0.00	0.00	-580.59
1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy	473127.94	776.39	-1688.62	0.00	0.00	-3907.19
1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy	399602.56	-1544.29	-975.79	0.00	0.00	-13263.27
1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy	489438.28	-1142.34	2030.71	0.00	0.00	-16382.80
1.2 Dead+1.0 Ice+1.0 Temp+Guy	452719.27	113.67	-66.51	0.00	0.00	-134.33
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	498116.61	101.93	-7.07	0.00	0.00	-4728.66
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	507282.02	366.06	-62.87	0.00	0.00	-1461.31
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	509245.26	387.93	-237.09	0.00	0.00	-62.21
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	506779.31	220.28	-305.96	0.00	0.00	1750.31
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	498532.63	20.38	-107.04	0.00	0.00	6130.29
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	508844.50	-139.58	143.17	0.00	0.00	8355.53
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	510531.39	122.09	282.09	0.00	0.00	5247.60
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	507912.73	278.17	145.25	0.00	0.00	906.60
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	496285.75	72.55	-49.19	0.00	0.00	-1350.95
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	507155.76	11.80	-327.57	0.00	0.00	-3029.54

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	509884.33	-186.48	-263.78	0.00	0.00	-6261.37
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	508574.54	-191.72	28.84	0.00	0.00	-7559.20
Dead+Wind 0 deg - Service+Guy	228251.51	16.03	-985.76	0.00	0.00	-3395.55
Dead+Wind 30 deg - Service+Guy	230183.89	436.86	-726.73	0.00	0.00	-749.72
Dead+Wind 60 deg - Service+Guy	231510.08	725.42	-404.69	0.00	0.00	57.36
Dead+Wind 90 deg - Service+Guy	230293.60	898.75	3.59	0.00	0.00	1193.21
Dead+Wind 120 deg - Service+Guy	228748.47	932.21	533.72	0.00	0.00	3906.42
Dead+Wind 150 deg - Service+Guy	230996.60	494.80	855.28	0.00	0.00	5114.33
Dead+Wind 180 deg - Service+Guy	231715.35	18.16	880.41	0.00	0.00	3261.36
Dead+Wind 210 deg - Service+Guy	230191.90	-404.58	732.33	0.00	0.00	661.13
Dead+Wind 240 deg - Service+Guy	227973.48	-788.46	467.15	0.00	0.00	-150.86
Dead+Wind 270 deg - Service+Guy	230308.80	-865.36	0.83	0.00	0.00	-1241.94
Dead+Wind 300 deg - Service+Guy	231961.55	-804.89	-473.01	0.00	0.00	-4006.62
Dead+Wind 330 deg - Service+Guy	231005.71	-481.31	-837.38	0.00	0.00	-5302.23

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.00	-71475.10	0.00	0.79	71472.88	-0.92	0.004%
2	253.55	-83862.79	-132995.48	-253.55	83861.95	132985.59	0.006%
3	62623.30	-83470.94	-108427.83	-62623.91	83470.57	108419.97	0.005%
4	106556.56	-83079.09	-61825.57	-106558.75	83079.07	61821.46	0.003%
5	127154.77	-83470.94	-377.42	-127148.07	83470.58	382.10	0.005%
6	119298.44	-83862.79	68745.16	-119290.13	83861.98	-68740.39	0.006%
7	67552.41	-83470.94	117324.82	-67544.14	83470.48	-117321.00	0.006%
8	-342.08	-83079.09	127555.30	333.65	83079.00	-127553.85	0.006%
9	-62821.52	-83470.94	108313.59	62814.54	83470.59	-108310.26	0.005%
10	-111253.54	-83862.79	64393.21	111244.89	83862.05	-64388.23	0.007%
11	-127154.35	-83470.94	33.72	127147.67	83470.58	-29.08	0.005%
12	-114832.89	-83079.09	-66208.91	114833.92	83079.08	66206.75	0.002%
13	-67705.54	-83470.94	-117235.72	67706.23	83470.53	117227.89	0.005%
14	0.00	-278578.46	0.00	1.10	278578.46	-1.23	0.001%
15	911.48	-279003.19	-71288.53	-911.48	279003.12	71286.06	0.001%
16	35382.45	-278578.46	-60071.84	-35383.03	278578.40	60069.12	0.001%
17	59807.62	-278153.74	-34620.07	-59806.10	278153.65	34617.67	0.001%
18	69559.15	-278578.46	-592.80	-69557.10	278578.40	594.67	0.001%
19	61903.35	-279003.19	35900.28	-61900.99	279003.11	-35898.97	0.001%
20	35052.01	-278578.46	61986.59	-35049.27	278578.40	-61985.76	0.001%
21	-148.29	-278153.74	70742.65	148.19	278153.62	-70739.35	0.001%
22	-34414.51	-278578.46	60729.38	34411.94	278578.41	-60728.58	0.001%
23	-59938.19	-279003.18	35818.17	59935.89	279003.11	-35816.91	0.001%
24	-69247.20	-278578.46	50.98	69245.18	278578.40	-49.15	0.001%
25	-60865.69	-278153.74	-35059.73	60864.13	278153.65	35057.46	0.001%
26	-35438.98	-278578.46	-61304.27	35439.58	278578.40	61301.43	0.001%
27	65.96	-71577.04	-34598.20	-65.96	71577.03	34597.17	0.001%
28	16291.18	-71475.10	-28207.03	-16291.10	71475.10	28206.05	0.001%
29	27720.23	-71373.16	-16083.66	-27719.17	71373.15	16082.95	0.002%
30	33078.77	-71475.10	-98.18	-33077.58	71475.09	98.67	0.002%
31	31034.97	-71577.04	17883.76	-31033.81	71577.03	-17883.09	0.002%
32	17573.47	-71475.10	30521.55	-17572.40	71475.10	-30520.77	0.002%
33	-88.99	-71373.16	33182.96	88.99	71373.15	-33181.72	0.002%
34	-16342.75	-71475.10	28177.31	16341.97	71475.10	-28176.76	0.001%
35	-28942.13	-71577.04	16751.62	28941.29	71577.03	-16751.13	0.001%
36	-33078.65	-71475.10	8.77	33077.46	71475.09	-8.27	0.002%

Load Comb.	Sum of Applied Forces PX lb	PY lb	PZ lb	Sum of Reactions PX lb	PY lb	PZ lb	% Error
37	-29873.28	-71373.16	-17223.96	29872.29	71373.15	17223.30	0.002%
38	-17613.30	-71475.10	-30498.37	17613.18	71475.09	30497.01	0.002%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	8	0.00000001	0.00005763
2	Yes	48	0.00009299	0.00007523
3	Yes	48	0.00008895	0.00006251
4	Yes	31	0.00009768	0.00004174
5	Yes	47	0.00009283	0.00006341
6	Yes	47	0.00008862	0.00006981
7	Yes	46	0.00009980	0.00006864
8	Yes	23	0.00009354	0.00005839
9	Yes	48	0.00008705	0.00006089
10	Yes	48	0.00009541	0.00007633
11	Yes	47	0.00009194	0.00006289
12	Yes	29	0.00009065	0.00004878
13	Yes	47	0.00008586	0.00005951
14	Yes	14	0.00010000	0.00003167
15	Yes	59	0.00009044	0.00001889
16	Yes	53	0.00009361	0.00002209
17	Yes	31	0.00008717	0.00002425
18	Yes	52	0.00009598	0.00002214
19	Yes	58	0.00009908	0.00002069
20	Yes	52	0.00009718	0.00002294
21	Yes	30	0.00009632	0.00002889
22	Yes	53	0.00009000	0.00002131
23	Yes	59	0.00009593	0.00002018
24	Yes	52	0.00009386	0.00002163
25	Yes	31	0.00008587	0.00002418
26	Yes	52	0.00009896	0.00002315
27	Yes	22	0.00000001	0.00001480
28	Yes	22	0.00000001	0.00001365
29	Yes	20	0.00000001	0.00001767
30	Yes	21	0.00000001	0.00001763
31	Yes	21	0.00009815	0.00001937
32	Yes	21	0.00009149	0.00001793
33	Yes	20	0.00000001	0.00001723
34	Yes	22	0.00000001	0.00001313
35	Yes	22	0.00000001	0.00001390
36	Yes	21	0.00000001	0.00001751
37	Yes	20	0.00000001	0.00001680
38	Yes	21	0.00009471	0.00001857

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	495 - 454	13.482	33	0.5438	0.2980

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	454 - 442	9.663	29	0.1560	0.2741
T2	442 - 422	9.277	29	0.1562	0.2716
T3	422 - 402	8.615	29	0.1569	0.2713
T4	402 - 382	7.978	33	0.1449	0.2962
T5	382 - 362	7.444	33	0.1125	0.3255
T6	362 - 342	7.041	37	0.0975	0.3390
T7	342 - 322	6.720	37	0.0855	0.3790
T8	322 - 302	6.469	37	0.0660	0.3967
T9	302 - 282	6.265	37	0.0733	0.4110
T10	282 - 262	5.988	37	0.0922	0.4433
T11	262 - 242	5.619	37	0.1037	0.4654
T12	242 - 222	5.164	37	0.1303	0.4816
T13	222 - 202	4.595	38	0.1412	0.5002
T14	202 - 182	4.056	32	0.1330	0.4896
T15	182 - 162	3.535	32	0.1266	0.5047
T16	162 - 142	3.055	32	0.1011	0.4722
T17	142 - 122	2.709	32	0.0850	0.4911
T18	122 - 102	2.403	31	0.0824	0.4308
T19	102 - 82	2.099	31	0.0748	0.4160
T20	82 - 62	1.824	31	0.0760	0.3253
T21	62 - 42	1.478	31	0.0913	0.2963
T22	42 - 22	1.067	31	0.1035	0.1803
T23	22 - 2	0.599	31	0.1209	0.1439

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
479.00	FMH-2AC-Radomes	29	11.656	0.3374	0.3081	8201
460.00	DB436-C	29	9.992	0.1763	0.2912	3749
454.00	Guy	29	9.663	0.1560	0.2741	3579
446.00	Work Platform w/ handrail	29	9.388	0.1532	0.2667	17746
438.00	GP6F-21A	29	9.158	0.1581	0.2711	17636
386.00	Guy	33	7.540	0.1185	0.3177	29513
353.00	P3F-52-N7A	37	6.891	0.0934	0.3463	106824
340.00	DB496-A	37	6.691	0.0835	0.3790	51565
326.00	Guy	37	6.513	0.0685	0.3863	57456
305.00	4' Standoff	37	6.298	0.0706	0.4042	61750
280.00	APX16DWV-16DWVS-C-A20 w/Mount Pipe	37	5.955	0.0935	0.4442	52115
266.00	Guy	37	5.699	0.1005	0.4574	71774
257.00	AAHC	37	5.516	0.1095	0.4634	51707
248.00	GP8F-21A	37	5.314	0.1223	0.4656	31214
242.00	GP8F-21A	37	5.164	0.1303	0.4816	26636
239.00	Large Beacon	37	5.082	0.1336	0.4808	30307
214.00	Guy	32	4.375	0.1383	0.4869	82604
162.00	Guy	32	3.055	0.1011	0.4722	24465
140.00	4' Standoff	32	2.677	0.0844	0.4874	126995
125.00	4' Standoff	31	2.448	0.0830	0.4336	110199
108.00	4' Standoff	31	2.187	0.0770	0.4208	62506
102.00	Guy	31	2.099	0.0748	0.4160	46512
50.00	Guy	31	1.238	0.0987	0.2193	93222

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	495 - 454	120.894	2	2.7617	0.7498
T1	454 - 442	100.074	2	1.2987	0.7349
T2	442 - 422	96.834	2	1.3038	0.6625
T3	422 - 402	91.312	2	1.3180	0.7196
T4	402 - 382	85.784	2	1.2705	0.6881
T5	382 - 362	80.683	2	1.1307	0.7682
T6	362 - 342	76.148	2	1.0782	0.7432
T7	342 - 322	71.786	2	1.0439	0.8105
T8	322 - 302	68.235	6	0.9826	0.9134
T9	302 - 282	64.844	6	1.0380	0.9407
T10	282 - 262	61.012	6	1.1481	1.1089
T11	262 - 242	56.651	6	1.2206	1.1588
T12	242 - 222	51.796	6	1.3465	1.2781
T13	222 - 202	46.301	6	1.3893	1.3161
T14	202 - 182	40.773	6	1.3306	1.3567
T15	182 - 162	35.371	6	1.2536	1.3831
T16	162 - 142	30.288	6	1.1117	1.3499
T17	142 - 122	25.966	6	0.9962	1.4019
T18	122 - 102	21.944	6	0.9331	1.2915
T19	102 - 82	18.157	6	0.8466	1.2045
T20	82 - 62	14.805	6	0.8041	0.9940
T21	62 - 42	11.421	6	0.8248	0.8637
T22	42 - 22	7.932	6	0.8460	0.5596
T23	22 - 2	4.294	6	0.9009	0.3981

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
479.00	FMH-2AC-Radomes	2	111.487	1.9949	0.7861	2184
460.00	DB436-C	2	102.224	1.3773	0.7665	997
454.00	Guy	2	100.074	1.2987	0.7349	951
446.00	Work Platform w/ handrail	2	97.845	1.2904	0.6793	4672
438.00	GP6F-21A	2	95.786	1.3138	0.6620	4684
386.00	Guy	2	81.654	1.1569	0.7594	6985
353.00	P3F-52-N7A	2	74.164	1.0676	0.7644	9968
340.00	DB496-A	2	71.363	1.0373	0.8075	8027
326.00	Guy	6	68.911	0.9890	0.8840	8557
305.00	4' Standoff	6	65.370	1.0227	0.9196	10568
280.00	APX16DWV-16DWVS-C-A20 w/Mount Pipe	6	60.598	1.1561	1.1153	8951
266.00	Guy	6	57.559	1.2028	1.1345	11634
257.00	AAHC	6	55.493	1.2494	1.1668	9446
248.00	GP8F-21A	6	53.323	1.3099	1.2275	6443
242.00	GP8F-21A	6	51.796	1.3465	1.2781	5734
239.00	Large Beacon	6	51.004	1.3610	1.2829	6480
214.00	Guy	6	44.074	1.3722	1.2983	16969
162.00	Guy	6	30.288	1.1117	1.3499	4600
140.00	4' Standoff	6	25.558	0.9888	1.3956	15149
125.00	4' Standoff	6	22.538	0.9433	1.3001	16148
108.00	4' Standoff	6	19.247	0.8721	1.2256	8508
102.00	Guy	6	18.157	0.8466	1.2045	7577
50.00	Guy	6	9.339	0.8356	0.6595	24530

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	454	Diagonal	A325N	0.6250	1	2295.13	6830.86	0.336 ✔	1	Member Block Shear
		Horizontal	A325N	0.6250	1	543.34	6830.86	0.080 ✔	1	Member Block Shear
		Top Guy Pull-Off@454	A325N	0.7500	2	0.28	15700.80	0.000 ✔	1	Member Block Shear
T2	442	Leg	A325N	0.6250	3	0.00	20708.70	0.000 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	2521.69	6830.86	0.369 ✔	1	Member Block Shear
		Horizontal	A325N	0.6250	1	810.63	6830.86	0.119 ✔	1	Member Block Shear
T3	422	Leg	A325N	0.6250	3	0.00	20708.70	0.000 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	4522.59	6830.86	0.662 ✔	1	Member Block Shear
		Horizontal	A325N	0.6250	1	869.85	6830.86	0.127 ✔	1	Member Block Shear
T4	402	Leg	A325N	0.6250	3	897.62	20708.70	0.043 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	6046.37	9107.81	0.664 ✔	1	Member Block Shear
		Horizontal	A325N	0.6250	1	1405.45	6830.86	0.206 ✔	1	Member Block Shear
		Top Guy Pull-Off@386	A325N	0.7500	2	4819.77	15700.80	0.307 ✔	1	Member Block Shear
T5	382	Leg	A325N	0.6250	3	0.00	20708.70	0.000 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	2599.24	5811.33	0.447 ✔	1	Member Block Shear
		Horizontal	A325N	0.6250	1	1405.45	6830.86	0.206 ✔	1	Member Block Shear
T6	362	Leg	A325N	0.6250	3	0.00	20708.70	0.000 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	1908.10	9107.81	0.210 ✔	1	Member Block Shear
		Horizontal	A325N	0.6250	1	1369.07	6830.86	0.200 ✔	1	Member Block Shear
T7	342	Leg	A325N	0.6250	3	0.00	20708.70	0.000 ✔	1	Bolt Tension
		Diagonal	A325X	0.6250	1	6354.31	9107.81	0.698 ✔	1	Member Block Shear
		Horizontal	A325N	0.6250	1	1574.30	6830.86	0.230 ✔	1	Member Block Shear
		Top Guy Pull-Off@326	A325N	0.7500	2	4787.98	15700.80	0.305 ✔	1	Member Block Shear
T8	322	Leg	A325N	0.6250	3	0.00	20708.70	0.000 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	5925.07	10440.00	0.568 ✔	1	Gusset Bearing
		Horizontal	A325N	0.6250	1	1694.30	6830.86	0.248 ✔	1	Member Block Shear
T9	302	Leg	A325N	0.6250	3	0.00	20708.70	0.000 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	1	3659.67	9107.81	0.402 ✔	1	Member Block Shear
		Horizontal	A325N	0.6250	1	1791.17	6830.86	0.262 ✔	1	Member Block

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T10	282	Leg	A325N	0.6250	3	0.00	20708.70	0.000 ✔	1	Shear Bolt Tension
		Diagonal	A325N	0.7500	1	8044.78	12615.00	0.638 ✔	1	Gusset Bearing
		Horizontal	A325N	0.6250	1	2282.63	6830.86	0.334 ✔	1	Member Block Shear
		Top Guy Pull-Off@266	A325N	0.7500	2	6617.05	15700.80	0.421 ✔	1	Member Block Shear
T11	262	Leg	A325N	0.6250	3	0.00	20708.70	0.000 ✔	1	Bolt Tension
		Diagonal	A325X	0.6250	1	7792.94	10440.00	0.746 ✔	1	Gusset Bearing
		Horizontal	A325N	0.6250	1	2801.96	6830.86	0.410 ✔	1	Member Block Shear
T12	242	Leg	A325N	0.6250	3	0.00	20708.70	0.000 ✔	1	Bolt Tension
		Diagonal	A325N	0.7500	1	9981.67	12615.00	0.791 ✔	1	Gusset Bearing
		Horizontal	A325N	0.6250	1	2534.93	6830.86	0.371 ✔	1	Member Block Shear
T13	222	Leg	A325N	0.6250	3	0.00	20708.70	0.000 ✔	1	Bolt Tension
		Diagonal	A325N	0.7500	1	11442.30	12615.00	0.907 ✔	1	Gusset Bearing
		Horizontal	A325N	0.6250	1	2702.76	6830.86	0.396 ✔	1	Member Block Shear
		Top Guy Pull-Off@214	A325N	0.7500	2	6559.97	15700.80	0.418 ✔	1	Member Block Shear
T14	202	Leg	A325N	0.6250	3	0.00	20708.70	0.000 ✔	1	Bolt Tension
		Diagonal	A325X	0.6250	1	7098.56	15186.40	0.467 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	3073.59	6830.86	0.450 ✔	1	Member Block Shear
T15	182	Leg	A325N	0.6250	3	0.00	20708.70	0.000 ✔	1	Bolt Tension
		Diagonal	A325X	0.6250	1	8055.71	10440.00	0.772 ✔	1	Gusset Bearing
		Horizontal	A325N	0.6250	1	3881.16	6830.86	0.568 ✔	1	Member Block Shear
T16	162	Leg	A325N	0.6250	3	0.00	20708.70	0.000 ✔	1	Bolt Tension
		Diagonal	A325X	0.6250	1	6083.36	10440.00	0.583 ✔	1	Gusset Bearing
		Horizontal	A325N	0.6250	1	3910.57	6830.86	0.572 ✔	1	Member Block Shear
		Top Guy Pull-Off@162	A325X	0.6250	2	7885.45	13920.00	0.566 ✔	1	Gusset Bearing
T17	142	Leg	A325N	0.6250	3	0.00	20708.70	0.000 ✔	1	Bolt Tension
		Diagonal	A325X	0.6250	1	5474.90	15186.40	0.361 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	3910.57	6830.86	0.572 ✔	1	Member Block Shear
T18	122	Leg	A325N	0.6250	3	0.00	20708.70	0.000 ✔	1	Bolt Tension
		Diagonal	A325X	0.6250	1	7263.88	10440.00	0.696 ✔	1	Gusset Bearing
		Horizontal	A325N	0.6250	1	3637.16	6830.86	0.532 ✔	1	Member Block Shear
T19	102	Leg	A325N	0.6250	3	0.00	20708.70	0.000 ✔	1	Bolt Tension
		Diagonal	A325X	0.6250	1	10069.70	10440.00	0.965 ✔	1	Gusset Bearing
		Horizontal	A325N	0.6250	1	3595.94	6830.86	0.526 ✔	1	Member Block Shear
		Top Guy Pull-Off@102	A325X	0.6250	2	6477.77	13920.00	0.465 ✔	1	Gusset Bearing

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load per Bolt lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T20	82	Leg	A325N	0.6250	3	0.00	20708.70	0.000 ✔	1	Bolt Tension
		Diagonal	A325X	0.6250	1	9134.26	15186.40	0.601 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	1	3595.94	6830.86	0.526 ✔	1	Member Block Shear
T21	62	Leg	A325N	0.6250	3	0.00	20708.70	0.000 ✔	1	Bolt Tension
		Diagonal	A325X	0.6250	1	8735.11	10440.00	0.837 ✔	1	Gusset Bearing
		Horizontal	A325N	0.6250	1	3250.40	6830.86	0.476 ✔	1	Member Block Shear
		Top Guy Pull-Off@50	A325N	0.7500	2	4187.63	15700.80	0.267 ✔	1	Member Block Shear
T22	42	Leg	A325N	0.6250	3	0.00	20708.70	0.000 ✔	1	Bolt Tension
		Diagonal	A325X	0.6250	1	7107.50	10440.00	0.681 ✔	1	Gusset Bearing
		Horizontal	A325N	0.6250	1	3345.12	6830.86	0.490 ✔	1	Member Block Shear
T23	22	Leg	A325N	0.6250	3	0.00	20708.70	0.000 ✔	1	Bolt Tension
		Diagonal	A325X	0.6250	1	7790.85	10440.00	0.746 ✔	1	Gusset Bearing
		Horizontal	A325N	0.6250	1	3345.12	6830.86	0.490 ✔	1	Member Block Shear

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T_u lb	Allowable ϕT_n lb	Required S.F.	Actual S.F.
T1	454.00 (A) (751)	1 EHS	10450.00	104500.20	45640.60	62700.00	1.000	1.374 ✔
	454.00 (B) (750)	1 EHS	10450.00	104500.20	44716.70	62700.00	1.000	1.402 ✔
	454.00 (C) (749)	1 EHS	10450.00	104500.20	45772.20	62700.00	1.000	1.370 ✔
T4	386.00 (A) (754)	1 EHS	10450.00	104500.20	46840.80	62700.00	1.000	1.339 ✔
	386.00 (B) (753)	1 EHS	10450.00	104500.20	46356.10	62700.00	1.000	1.353 ✔
	386.00 (C) (752)	1 EHS	10450.00	104500.20	46855.00	62700.00	1.000	1.338 ✔
T7	326.00 (A) (757)	7/8 EHS	7970.00	79699.84	38926.50	47820.00	1.000	1.228 ✔
	326.00 (B) (756)	7/8 EHS	7970.00	79699.84	38954.60	47820.00	1.000	1.228 ✔
	326.00 (C) (755)	7/8 EHS	7970.00	79699.84	38451.80	47820.00	1.000	1.244 ✔
T10	266.00 (A) (760)	7/8 EHS	7970.00	79699.84	44501.70	47820.00	1.000	1.075 ✔
	266.00 (B) (759)	7/8 EHS	7970.00	79699.84	44536.50	47820.00	1.000	1.074 ✔
	266.00 (C) (758)	7/8 EHS	7970.00	79699.84	42559.40	47820.00	1.000	1.124 ✔
T13	214.00 (A) (763)	7/8 EHS	7970.00	79699.84	43105.00	47820.00	1.000	1.109 ✔
	214.00 (B) (762)	7/8 EHS	7970.00	79699.84	43084.10	47820.00	1.000	1.110 ✔
	214.00 (C) (761)	7/8 EHS	7970.00	79699.84	40116.60	47820.00	1.000	1.192 ✔
T16	162.00 (A) (766)	7/8 EHS	6774.50	79699.84	42724.00	47820.00	1.000	1.119 ✔
	162.00 (B) (765)	7/8 EHS	6774.50	79699.84	42686.60	47820.00	1.000	1.120 ✔

Section No.	Elevation ft	Size	Initial Tension lb	Breaking Load lb	Actual T_u lb	Allowable ϕT_n lb	Required S.F.	Actual S.F.
	162.00 (C) (764)	7/8 EHS	6774.50	79699.84	38449.10	47820.00	1.000	1.244 ✓
T19	102.00 (A) (769)	11/16 EHS	4000.00	49999.96	26631.60	30000.00	1.000	1.126 ✓
	102.00 (B) (768)	11/16 EHS	4000.00	49999.96	26606.20	30000.00	1.000	1.128 ✓
	102.00 (C) (767)	11/16 EHS	4000.00	49999.96	23343.50	30000.00	1.000	1.285 ✓
T21	50.00 (A) (772)	1/2 EHS	2690.00	26900.04	13538.20	16140.00	1.000	1.192 ✓
	50.00 (B) (771)	1/2 EHS	2690.00	26900.04	13536.50	16140.00	1.000	1.192 ✓
	50.00 (C) (770)	1/2 EHS	2690.00	26900.04	11898.30	16140.00	1.000	1.356 ✓

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	495 - 454 (1)	P10x.5	41.00	0.00	0.0	16.1007	-3045.54	507171.00	0.006

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	495 - 454 (1)	P10x.5	84413.33	138004.17	0.612	0.00	138004.17	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u lb-ft	ϕT_n lb-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	495 - 454 (1)	P10x.5	3708.67	253585.00	0.015	1274.00	207020.83	0.006

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $P_u/\phi P_n$	Ratio $M_{ux}/\phi M_{nx}$	Ratio $M_{uy}/\phi M_{ny}$	Ratio $V_u/\phi V_n$	Ratio $T_u/\phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	495 - 454 (1)	0.006	0.612	0.000	0.015	0.006	0.618 ✔	1.000	4.8.2 ✔

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $P_u/\phi P_n$
T1	454 - 442	2	12.00	4.00	96.0 K=1.00	3.1416	-31223.00	72063.20	0.433 [1]
T2	442 - 422	2	20.00	4.00	96.0 K=1.00	3.1416	-32059.60	72063.20	0.445 [1]
T3	422 - 402	2 1/4	20.00	4.00	85.3 K=1.00	3.9761	-50220.90	105060.00	0.478 [1]
T4	402 - 382	2 1/4	20.00	4.00	85.3 K=1.00	3.9761	-81143.70	105060.00	0.772 [1]
T5	382 - 362	2 1/4	20.00	4.00	85.3 K=1.00	3.9761	-79043.40	105060.00	0.752 [1]
T6	362 - 342	2 1/4	20.00	4.00	85.3 K=1.00	3.9761	-78039.70	105060.00	0.743 [1]
T7	342 - 322	2 1/4	20.00	4.00	85.3 K=1.00	3.9761	-90892.20	105060.00	0.865 [1]
T8	322 - 302	2 1/2	20.00	4.00	76.8 K=1.00	4.9087	-97820.70	143512.00	0.682 [1]
T9	302 - 282	2 1/2	20.00	4.00	76.8 K=1.00	4.9087	-103413.00	143512.00	0.721 [1]
T10	282 - 262	2 3/4	20.00	4.00	69.8 K=1.00	5.9396	-131788.00	187145.00	0.704 [1]
T11	262 - 242	2 3/4	20.00	4.00	69.8 K=1.00	5.9396	-146354.00	187145.00	0.782 [1]
T12	242 - 222	2 3/4	20.00	4.00	69.8 K=1.00	5.9396	-139220.00	187145.00	0.744 [1]
T13	222 - 202	3	20.00	4.00	64.0 K=1.00	7.0686	-156044.00	235765.00	0.662 [1]
T14	202 - 182	3	20.00	4.00	64.0 K=1.00	7.0686	-177454.00	235765.00	0.753 [1]
T15	182 - 162	3	20.00	4.00	64.0 K=1.00	7.0686	-224079.00	235765.00	0.950 [1]
T16	162 - 142	3	20.00	4.00	64.0 K=1.00	7.0686	-225777.00	235765.00	0.958 [1]
T17	142 - 122	3	20.00	4.00	64.0 K=1.00	7.0686	-197544.00	235765.00	0.838 [1]
T18	122 - 102	3	20.00	4.00	64.0 K=1.00	7.0686	-209992.00	235765.00	0.891 [1]
T19	102 - 82	3	20.00	4.00	64.0 K=1.00	7.0686	-207612.00	235765.00	0.881 [1]
T20	82 - 62	3	20.00	4.00	64.0 K=1.00	7.0686	-180514.00	235765.00	0.766 [1]
T21	62 - 42	3	20.00	4.00	64.0 K=1.00	7.0686	-187662.00	235765.00	0.796 [1]
T22	42 - 22	3	20.00	4.00	64.0 K=1.00	7.0686	-193130.00	235765.00	0.819 [1]
T23	22 - 2	3	20.00	4.00	64.0 K=1.00	7.0686	-193005.00	235765.00	0.819 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$

[1] P_u / ϕP_n controls

Leg Bending Design Data (Compression)

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	454 - 442	2	0.00	5000.00	0.000	0.00	5000.00	0.000
T2	442 - 422	2	0.00	5000.00	0.000	0.00	5000.00	0.000
T3	422 - 402	2 1/4	0.00	7119.14	0.000	0.00	7119.14	0.000
T4	402 - 382	2 1/4	0.00	7119.14	0.000	0.00	7119.14	0.000
T5	382 - 362	2 1/4	0.00	7119.14	0.000	0.00	7119.14	0.000
T6	362 - 342	2 1/4	0.00	7119.14	0.000	0.00	7119.14	0.000
T7	342 - 322	2 1/4	0.00	7119.14	0.000	0.00	7119.14	0.000
T8	322 - 302	2 1/2	0.00	9765.67	0.000	0.00	9765.67	0.000
T9	302 - 282	2 1/2	0.00	9765.67	0.000	0.00	9765.67	0.000
T10	282 - 262	2 3/4	0.00	12998.08	0.000	0.00	12998.08	0.000
T11	262 - 242	2 3/4	0.00	12998.08	0.000	0.00	12998.08	0.000
T12	242 - 222	2 3/4	0.00	12998.08	0.000	0.00	12998.08	0.000
T13	222 - 202	3	0.00	16875.00	0.000	0.00	16875.00	0.000
T14	202 - 182	3	0.00	16875.00	0.000	0.00	16875.00	0.000
T15	182 - 162	3	0.00	16875.00	0.000	0.00	16875.00	0.000
T16	162 - 142	3	0.00	16875.00	0.000	0.00	16875.00	0.000
T17	142 - 122	3	0.00	16875.00	0.000	0.00	16875.00	0.000
T18	122 - 102	3	0.00	16875.00	0.000	0.00	16875.00	0.000
T19	102 - 82	3	0.00	16875.00	0.000	0.00	16875.00	0.000
T20	82 - 62	3	0.00	16875.00	0.000	0.00	16875.00	0.000
T21	62 - 42	3	0.00	16875.00	0.000	0.00	16875.00	0.000
T22	42 - 22	3	0.00	16875.00	0.000	0.00	16875.00	0.000
T23	22 - 2	3	0.00	16875.00	0.000	0.00	16875.00	0.000

Leg Interaction Design Data (Compression)

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	454 - 442	2	0.433	0.000	0.000	0.433 [1] ✔	1.000	4.8.1 ✔
T2	442 - 422	2	0.445	0.000	0.000	0.445 [1] ✔	1.000	4.8.1 ✔
T3	422 - 402	2 1/4	0.478	0.000	0.000	0.478 [1] ✔	1.000	4.8.1 ✔
T4	402 - 382	2 1/4	0.772	0.000	0.000	0.772 [1] ✔	1.000	4.8.1 ✔
T5	382 - 362	2 1/4	0.752	0.000	0.000	0.752 [1] ✔	1.000	4.8.1 ✔
T6	362 - 342	2 1/4	0.743	0.000	0.000	0.743 [1] ✔	1.000	4.8.1 ✔
T7	342 - 322	2 1/4	0.865	0.000	0.000	0.865 [1] ✔	1.000	4.8.1 ✔
T8	322 - 302	2 1/2	0.682	0.000	0.000	0.682 [1] ✔	1.000	4.8.1 ✔
T9	302 - 282	2 1/2	0.721	0.000	0.000	0.721 [1] ✔	1.000	4.8.1 ✔
T10	282 - 262	2 3/4	0.704	0.000	0.000	0.704 [1] ✔	1.000	4.8.1 ✔

Section No.	Elevation ft	Size	Ratio $P_u / \phi P_n$	Ratio $M_{ux} / \phi M_{nx}$	Ratio $M_{uy} / \phi M_{ny}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T11	262 - 242	2 3/4	0.782	0.000	0.000	0.782 [1] ✔	1.000	4.8.1 ✔
T12	242 - 222	2 3/4	0.744	0.000	0.000	0.744 [1] ✔	1.000	4.8.1 ✔
T13	222 - 202	3	0.662	0.000	0.000	0.662 [1] ✔	1.000	4.8.1 ✔
T14	202 - 182	3	0.753	0.000	0.000	0.753 [1] ✔	1.000	4.8.1 ✔
T15	182 - 162	3	0.950	0.000	0.000	0.950 [1] ✔	1.000	4.8.1 ✔
T16	162 - 142	3	0.958	0.000	0.000	0.958 [1] ✔	1.000	4.8.1 ✔
T17	142 - 122	3	0.838	0.000	0.000	0.838 [1] ✔	1.000	4.8.1 ✔
T18	122 - 102	3	0.891	0.000	0.000	0.891 [1] ✔	1.000	4.8.1 ✔
T19	102 - 82	3	0.881	0.000	0.000	0.881 [1] ✔	1.000	4.8.1 ✔
T20	82 - 62	3	0.766	0.000	0.000	0.766 [1] ✔	1.000	4.8.1 ✔
T21	62 - 42	3	0.796	0.000	0.000	0.796 [1] ✔	1.000	4.8.1 ✔
T22	42 - 22	3	0.819	0.000	0.000	0.819 [1] ✔	1.000	4.8.1 ✔
T23	22 - 2	3	0.819	0.000	0.000	0.819 [1] ✔	1.000	4.8.1 ✔

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $P_u / \phi P_n$
T1	454 - 442	L2x2x3/16	5.66	5.18	157.8 K=1.00	0.7150	-2839.29	6485.65	0.438 [1] ✔
T2	442 - 422	L2x2x3/16	5.66	5.18	157.8 K=1.00	0.7150	-2760.82	6485.65	0.426 [1] ✔
T3	422 - 402	L2x2x3/16	5.66	5.15	156.9 K=1.00	0.7150	-4974.04	6560.04	0.758 [1] ✔
T4	402 - 382	L2x2x1/4	5.66	5.15	158.1 K=1.00	0.9380	-6565.48	8475.48	0.775 [1] ✔
T5	382 - 362	L1 3/4x1 3/4x3/16	5.66	5.15	180.0 K=1.00	0.6211	-3264.85	4330.01	0.754 [1] ✔
T6	362 - 342	L2x2x1/4	5.66	5.15	158.1 K=1.00	0.9380	-2517.89	8475.48	0.297 [1] ✔
T7	342 - 322	L2x2x1/4	5.66	5.15	158.1 K=1.00	0.9380	-7098.48	8475.48	0.838 [1] ✔
T8	322 - 302	L2 1/2x2 1/2x3/8	5.66	5.12	126.2 K=1.00	1.7300	-6941.95	24529.80	0.283 [1] ✔
T9	302 - 282	L2x2x1/4	5.66	5.12	157.2 K=1.00	0.9380	-4786.29	8573.25	0.558 [1] ✔
T10	282 - 262	L2 1/2x2 1/2x3/8	5.66	5.06	124.7 K=1.00	1.7300	-9606.79	24711.50	0.389 [1] ✔
T11	262 - 242	L2 1/2x2 1/2x3/8	5.66	5.09	125.5 K=1.00	1.7300	-9502.97	24814.40	0.383 [1] ✔
T12	242 - 222	L2 1/2x2 1/2x3/8	5.66	5.06	124.7 K=1.00	1.7300	-11811.30	24711.50	0.478 [1] ✔
T13	222 - 202	L2 1/2x2 1/2x3/8	5.66	5.03	124.0	1.7300	-13526.40	24947.60	0.542 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
					K=1.00				✓
T14	202 - 182	L2 1/2x2 1/2x3/8	5.66	5.06	124.8 K=1.00	1.7300	-7098.56	25104.00	0.283 [1] ✓
T15	182 - 162	L2 1/2x2 1/2x3/8	5.66	5.06	124.8 K=1.00	1.7300	-10989.10	25104.00	0.438 [1] ✓
T16	162 - 142	L2 1/2x2 1/2x3/8	5.66	5.06	124.8 K=1.00	1.7300	-8550.82	25104.00	0.341 [1] ✓
T17	142 - 122	L2 1/2x2 1/2x3/8	5.66	5.06	124.8 K=1.00	1.7300	-5474.90	25104.00	0.218 [1] ✓
T18	122 - 102	L2 1/2x2 1/2x3/8	5.66	5.06	124.8 K=1.00	1.7300	-9655.72	25104.00	0.385 [1] ✓
T19	102 - 82	L2 1/2x2 1/2x3/8	5.66	5.06	124.8 K=1.00	1.7300	-13372.40	25104.00	0.533 [1] ✓
T20	82 - 62	L2 1/2x2 1/2x3/8	5.66	5.06	124.8 K=1.00	1.7300	-9134.26	25104.00	0.364 [1] ✓
T21	62 - 42	L2 1/2x2 1/2x3/8	5.66	5.06	124.8 K=1.00	1.7300	-11671.50	25104.00	0.465 [1] ✓
T22	42 - 22	L2 1/2x2 1/2x3/8	5.66	5.06	124.8 K=1.00	1.7300	-10100.60	25104.00	0.402 [1] ✓
T23	22 - 2	L2 1/2x2 1/2x3/8	5.66	5.06	124.8 K=1.00	1.7300	-10840.30	25104.00	0.432 [1] ✓

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	454 - 442	L2x2x3/16	4.00	3.59	114.7 K=1.05	0.7150	-543.34	11585.60	0.047 [1] ✓
T2	442 - 422	L2x2x3/16	4.00	3.59	114.7 K=1.05	0.7150	-640.28	11585.60	0.055 [1] ✓
T3	422 - 402	L2x2x3/16	4.00	3.59	114.7 K=1.05	0.7150	-869.85	11585.60	0.075 [1] ✓
T4	402 - 382	L2x2x3/16	4.00	3.57	114.4 K=1.05	0.7150	-1405.45	11630.00	0.121 [1] ✓
T5	382 - 362	L2x2x3/16	4.00	3.57	114.4 K=1.05	0.7150	-1405.45	11630.00	0.121 [1] ✓
T6	362 - 342	L2x2x3/16	4.00	3.57	114.4 K=1.05	0.7150	-1369.07	11630.00	0.118 [1] ✓
T7	342 - 322	L2x2x3/16	4.00	3.57	114.4 K=1.05	0.7150	-1574.30	11630.00	0.135 [1] ✓
T8	322 - 302	L2x2x3/16	4.00	3.57	114.4 K=1.05	0.7150	-1694.30	11630.00	0.146 [1] ✓
T9	302 - 282	L2x2x3/16	4.00	3.55	114.1 K=1.05	0.7150	-1791.17	11674.50	0.153 [1] ✓
T10	282 - 262	L2x2x3/16	4.00	3.55	114.1 K=1.05	0.7150	-2282.63	11674.50	0.196 [1] ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T11	262 - 242	L2x2x3/16	4.00	3.53	113.8 K=1.06	0.7150	-2534.93	11719.00	0.216 [1] ✓
T12	242 - 222	L2x2x3/16	4.00	3.53	113.8 K=1.06	0.7150	-2534.93	11719.00	0.216 [1] ✓
T13	222 - 202	L2x2x3/16	4.00	3.53	113.8 K=1.06	0.7150	-2702.76	11719.00	0.231 [1] ✓
T14	202 - 182	L2x2x3/16	4.00	3.51	113.5 K=1.06	0.7150	-3073.59	11763.60	0.261 [1] ✓
T15	182 - 162	L2x2x3/16	4.00	3.51	113.5 K=1.06	0.7150	-3881.16	11763.60	0.330 [1] ✓
T16	162 - 142	L2x2x3/16	4.00	3.51	113.5 K=1.06	0.7150	-3910.57	11763.60	0.332 [1] ✓
T17	142 - 122	L2x2x3/16	4.00	3.51	113.5 K=1.06	0.7150	-3910.57	11763.60	0.332 [1] ✓
T18	122 - 102	L2x2x3/16	4.00	3.51	113.5 K=1.06	0.7150	-3637.16	11763.60	0.309 [1] ✓
T19	102 - 82	L2x2x3/16	4.00	3.51	113.5 K=1.06	0.7150	-3595.94	11763.60	0.306 [1] ✓
T20	82 - 62	L2x2x3/16	4.00	3.51	113.5 K=1.06	0.7150	-3595.94	11763.60	0.306 [1] ✓
T21	62 - 42	L2x2x3/16	4.00	3.51	113.5 K=1.06	0.7150	-3250.40	11763.60	0.276 [1] ✓
T22	42 - 22	L2x2x3/16	4.00	3.51	113.5 K=1.06	0.7150	-3345.12	11763.60	0.284 [1] ✓
T23	22 - 2	L2x2x3/16	4.00	3.51	113.5 K=1.06	0.7150	-3345.12	11763.60	0.284 [1] ✓

[1] P_u / ϕP_n controls

Top Guy Pull-Off Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	454 - 442	L2 1/2x2 1/2x3/8	4.00	3.83	94.5 K=1.00	1.7300	-0.55	35043.50	0.000 [1] ✓

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T4	402 - 382	2 1/4	20.00	4.00	85.3	3.9761	20049.90	178924.00	0.112 [1]

[1] P_u / ϕP_n controls

Leg Bending Design Data (Tension)

Section No.	Elevation ft	Size	M_{ux} lb-ft	ϕM_{nx} lb-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} lb-ft	ϕM_{ny} lb-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T4	402 - 382	2 1/4	0.00	7119.14	0.000	0.00	7119.14	0.000

Leg Interaction Design Data (Tension)

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T4	402 - 382	2 1/4	0.112	0.000	0.000	0.112 [1] ✔	1.000	4.8.1 ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	454 - 442	L2x2x3/16	5.66	5.18	105.4	0.4308	2295.13	18739.00	0.122 [1] ✔
T2	442 - 422	L2x2x3/16	5.66	5.18	105.4	0.4308	2521.69	18739.00	0.135 [1] ✔
T3	422 - 402	L2x2x3/16	5.66	5.15	104.9	0.4308	4522.59	18739.00	0.241 [1] ✔
T4	402 - 382	L2x2x1/4	5.66	5.15	106.2	0.5629	6046.37	24485.10	0.247 [1] ✔
T5	382 - 362	L1 3/4x1 3/4x3/16	5.66	5.15	120.5	0.3604	2599.24	15675.30	0.166 [1] ✔
T6	362 - 342	L2x2x1/4	5.66	5.15	106.2	0.5629	1908.10	24485.10	0.078 [1] ✔
T7	342 - 322	L2x2x1/4	5.66	5.15	106.2	0.5629	6354.31	24485.10	0.260 [1] ✔
T8	322 - 302	L2 1/2x2 1/2x3/8	5.66	5.12	85.5	1.0866	5925.07	52969.90	0.112 [1] ✔
T9	302 - 282	L2x2x1/4	5.66	5.12	105.7	0.5629	3659.67	24485.10	0.149 [1] ✔
T10	282 - 262	L2 1/2x2 1/2x3/8	5.66	5.06	85.0	1.0514	8044.78	45736.20	0.176 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T11	262 - 242	L2 1/2x2 1/2x3/8	5.66	5.09	85.0	1.0866	7792.94	52969.90	0.147 [1]
T12	242 - 222	L2 1/2x2 1/2x3/8	5.66	5.06	85.0	1.0514	9981.67	45736.20	0.218 [1]
T13	222 - 202	L2 1/2x2 1/2x3/8	5.66	5.03	84.5	1.0514	11442.30	45736.20	0.250 [1]
T14	202 - 182	L2 1/2x2 1/2x3/8	5.66	5.06	84.5	1.0866	4665.93	52969.90	0.088 [1]
T15	182 - 162	L2 1/2x2 1/2x3/8	5.66	5.06	84.5	1.0866	8055.71	52969.90	0.152 [1]
T16	162 - 142	L2 1/2x2 1/2x3/8	5.66	5.06	84.5	1.0866	6083.36	52969.90	0.115 [1]
T17	142 - 122	L2 1/2x2 1/2x3/8	5.66	5.06	84.5	1.0866	2357.32	52969.90	0.045 [1]
T18	122 - 102	L2 1/2x2 1/2x3/8	5.66	5.06	84.5	1.0866	7263.88	52969.90	0.137 [1]
T19	102 - 82	L2 1/2x2 1/2x3/8	5.66	5.06	84.5	1.0866	10069.70	52969.90	0.190 [1]
T20	82 - 62	L2 1/2x2 1/2x3/8	5.66	5.06	84.5	1.0866	6206.65	52969.90	0.117 [1]
T21	62 - 42	L2 1/2x2 1/2x3/8	5.66	5.06	84.5	1.0866	8735.11	52969.90	0.165 [1]
T22	42 - 22	L2 1/2x2 1/2x3/8	5.66	5.06	84.5	1.0866	7107.50	52969.90	0.134 [1]
T23	22 - 2	L2 1/2x2 1/2x3/8	5.66	5.06	84.5	1.0866	7790.85	52969.90	0.147 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	454 - 442	L2x2x3/16	4.00	3.59	74.6	0.7150	543.34	23166.00	0.023 [1]
T2	442 - 422	L2x2x3/16	4.00	3.59	74.6	0.7150	810.63	23166.00	0.035 [1]
T3	422 - 402	L2x2x3/16	4.00	3.59	74.6	0.7150	869.85	23166.00	0.038 [1]
T4	402 - 382	L2x2x3/16	4.00	3.57	74.1	0.7150	1405.45	23166.00	0.061 [1]
T5	382 - 362	L2x2x3/16	4.00	3.57	74.1	0.7150	1405.45	23166.00	0.061 [1]
T6	362 - 342	L2x2x3/16	4.00	3.57	74.1	0.7150	1369.07	23166.00	0.059 [1]
T7	342 - 322	L2x2x3/16	4.00	3.57	74.1	0.7150	1574.30	23166.00	0.068 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T8	322 - 302	L2x2x3/16	4.00	3.57	74.1	0.7150	1694.30	23166.00	0.073 [1] ✔
T9	302 - 282	L2x2x3/16	4.00	3.55	73.7	0.7150	1791.17	23166.00	0.077 [1] ✔
T10	282 - 262	L2x2x3/16	4.00	3.55	73.7	0.7150	2282.63	23166.00	0.099 [1] ✔
T11	262 - 242	L2x2x3/16	4.00	3.53	73.3	0.7150	2801.96	23166.00	0.121 [1] ✔
T12	242 - 222	L2x2x3/16	4.00	3.53	73.3	0.7150	2534.93	23166.00	0.109 [1] ✔
T13	222 - 202	L2x2x3/16	4.00	3.53	73.3	0.7150	2702.76	23166.00	0.117 [1] ✔
T14	202 - 182	L2x2x3/16	4.00	3.51	72.9	0.7150	3073.59	23166.00	0.133 [1] ✔
T15	182 - 162	L2x2x3/16	4.00	3.51	72.9	0.7150	3881.16	23166.00	0.168 [1] ✔
T16	162 - 142	L2x2x3/16	4.00	3.51	72.9	0.7150	3910.57	23166.00	0.169 [1] ✔
T17	142 - 122	L2x2x3/16	4.00	3.51	72.9	0.7150	3910.57	23166.00	0.169 [1] ✔
T18	122 - 102	L2x2x3/16	4.00	3.51	72.9	0.7150	3637.16	23166.00	0.157 [1] ✔
T19	102 - 82	L2x2x3/16	4.00	3.51	72.9	0.7150	3595.94	23166.00	0.155 [1] ✔
T20	82 - 62	L2x2x3/16	4.00	3.51	72.9	0.7150	3595.94	23166.00	0.155 [1] ✔
T21	62 - 42	L2x2x3/16	4.00	3.51	72.9	0.7150	3250.40	23166.00	0.140 [1] ✔
T22	42 - 22	L2x2x3/16	4.00	3.51	72.9	0.7150	3345.12	23166.00	0.144 [1] ✔
T23	22 - 2	L2x2x3/16	4.00	3.51	72.9	0.7150	3345.12	23166.00	0.144 [1] ✔

[1] P_u / ϕP_n controls

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T1	454 - 442	L2 1/2x2 1/2x3/8	4.00	3.83	61.1	1.0514	0.55	45736.20	0.000 [1] ✔
T4	402 - 382	L2 1/2x2 1/2x3/8	4.00	3.81	60.8	1.0514	9639.53	45736.20	0.211 [1] ✔
T7	342 - 322	L2 1/2x2 1/2x3/8	4.00	3.81	60.8	1.0514	9575.96	45736.20	0.209 [1] ✔
T10	282 - 262	L2 1/2x2 1/2x3/8	4.00	3.77	60.1	1.0514	13234.10	45736.20	0.289 [1] ✔
T13	222 - 202	L2 1/2x2 1/2x3/8	4.00	3.75	59.8	1.0514	13119.90	45736.20	0.287 [1] ✔

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u lb	ϕP_n lb	Ratio $\frac{P_u}{\phi P_n}$
T16	162 - 142	L2 1/2x2 1/2x3/8	4.00	3.75	59.8	1.0866	15770.90	47265.50	0.334 [1]
T19	102 - 82	L2 1/2x2 1/2x3/8	4.00	3.75	59.8	1.0866	12955.50	47265.50	0.274 [1]
T21	62 - 42	L2 1/2x2 1/2x3/8	4.00	3.75	59.8	1.0514	8375.26	45736.20	0.183 [1]

[1] P_u / ϕP_n controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	495 - 454	Pole	P10x.5	1	-3045.54	507171.00	61.8	Pass
T1	454 - 442	Leg	2	2	-31223.00	72063.20	43.3	Pass
T2	442 - 422	Leg	2	25	-32059.60	72063.20	44.5	Pass
T3	422 - 402	Leg	2 1/4	58	-50220.90	105060.00	47.8	Pass
T4	402 - 382	Leg	2 1/4	91	-81143.70	105060.00	77.2	Pass
T5	382 - 362	Leg	2 1/4	124	-79043.40	105060.00	75.2	Pass
T6	362 - 342	Leg	2 1/4	157	-78039.70	105060.00	74.3	Pass
T7	342 - 322	Leg	2 1/4	189	-90892.20	105060.00	86.5	Pass
T8	322 - 302	Leg	2 1/2	221	-97820.70	143512.00	68.2	Pass
T9	302 - 282	Leg	2 1/2	255	-103413.00	143512.00	72.1	Pass
T10	282 - 262	Leg	2 3/4	287	-131788.00	187145.00	70.4	Pass
T11	262 - 242	Leg	2 3/4	322	-146354.00	187145.00	78.2	Pass
T12	242 - 222	Leg	2 3/4	355	-139220.00	187145.00	74.4	Pass
T13	222 - 202	Leg	3	386	-156044.00	235765.00	66.2	Pass
T14	202 - 182	Leg	3	419	-177454.00	235765.00	75.3	Pass
T15	182 - 162	Leg	3	452	-224079.00	235765.00	95.0	Pass
T16	162 - 142	Leg	3	485	-225777.00	235765.00	95.8	Pass
T17	142 - 122	Leg	3	518	-197544.00	235765.00	83.8	Pass
T18	122 - 102	Leg	3	553	-209992.00	235765.00	89.1	Pass
T19	102 - 82	Leg	3	585	-207612.00	235765.00	88.1	Pass
T20	82 - 62	Leg	3	619	-180514.00	235765.00	76.6	Pass
T21	62 - 42	Leg	3	652	-187662.00	235765.00	79.6	Pass
T22	42 - 22	Leg	3	685	-193130.00	235765.00	81.9	Pass
T23	22 - 2	Leg	3	716	-193005.00	235765.00	81.9	Pass
T1	454 - 442	Diagonal	L2x2x3/16	22	-2839.29	6485.65	43.8	Pass
T2	442 - 422	Diagonal	L2x2x3/16	30	-2760.82	6485.65	42.6	Pass
T3	422 - 402	Diagonal	L2x2x3/16	63	-4974.04	6560.04	75.8	Pass
T4	402 - 382	Diagonal	L2x2x1/4	102	-6565.48	8475.48	77.5	Pass
T5	382 - 362	Diagonal	L1 3/4x1 3/4x3/16	152	-3264.85	4330.01	75.4	Pass
T6	362 - 342	Diagonal	L2x2x1/4	162	-2517.89	8475.48	29.7	Pass
T7	342 - 322	Diagonal	L2x2x1/4	196	-7098.48	8475.48	83.8	Pass
T8	322 - 302	Diagonal	L2 1/2x2 1/2x3/8	253	-6941.95	24529.80	28.3	Pass
T9	302 - 282	Diagonal	L2x2x1/4	286	-4786.29	8573.25	55.8	Pass
T10	282 - 262	Diagonal	L2 1/2x2 1/2x3/8	295	-9606.79	24711.50	38.9	Pass
T11	262 - 242	Diagonal	L2 1/2x2 1/2x3/8	352	-9502.97	24814.40	38.3	Pass
T12	242 - 222	Diagonal	L2 1/2x2 1/2x3/8	361	-11811.30	24711.50	47.8	Pass
T13	222 - 202	Diagonal	L2 1/2x2 1/2x3/8	411	-13526.40	24947.60	54.2	Pass
T14	202 - 182	Diagonal	L2 1/2x2 1/2x3/8	426	-7098.56	25104.00	28.3	Pass
T15	182 - 162	Diagonal	L2 1/2x2 1/2x3/8	459	-10989.10	25104.00	43.8	Pass
T16	162 - 142	Diagonal	L2 1/2x2 1/2x3/8	515	-8550.82	25104.00	34.1	Pass
T17	142 - 122	Diagonal	L2 1/2x2 1/2x3/8	549	-5474.90	25104.00	21.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
T18	122 - 102	Diagonal	L2 1/2x2 1/2x3/8	557	-9655.72	25104.00	38.5	Pass
T19	102 - 82	Diagonal	L2 1/2x2 1/2x3/8	615	-13372.40	25104.00	53.3	Pass
T20	82 - 62	Diagonal	L2 1/2x2 1/2x3/8	648	-9134.26	25104.00	36.4	Pass
T21	62 - 42	Diagonal	L2 1/2x2 1/2x3/8	663	-11671.50	25104.00	46.5	Pass
T22	42 - 22	Diagonal	L2 1/2x2 1/2x3/8	714	-10100.60	25104.00	40.2	Pass
T23	22 - 2	Diagonal	L2 1/2x2 1/2x3/8	722	-10840.30	25104.00	43.2	Pass
T1	454 - 442	Horizontal	L2x2x3/16	11	-543.34	11585.60	4.7	Pass
T2	442 - 422	Horizontal	L2x2x3/16	52	-640.28	11585.60	5.5	Pass
T3	422 - 402	Horizontal	L2x2x3/16	60	-869.85	11585.60	7.5	Pass
T4	402 - 382	Horizontal	L2x2x3/16	93	-1405.45	11630.00	12.1	Pass
T5	382 - 362	Horizontal	L2x2x3/16	126	-1405.45	11630.00	12.1	Pass
T6	362 - 342	Horizontal	L2x2x3/16	159	-1369.07	11630.00	11.8	Pass
T7	342 - 322	Horizontal	L2x2x3/16	192	-1574.30	11630.00	13.5	Pass
T8	322 - 302	Horizontal	L2x2x3/16	224	-1694.30	11630.00	14.6	Pass
T9	302 - 282	Horizontal	L2x2x3/16	257	-1791.17	11674.50	15.3	Pass
T10	282 - 262	Horizontal	L2x2x3/16	304	-2282.63	11674.50	19.6	Pass
T11	262 - 242	Horizontal	L2x2x3/16	325	-2534.93	11719.00	21.6	Pass
T12	242 - 222	Horizontal	L2x2x3/16	358	-2534.93	11719.00	21.6	Pass
T13	222 - 202	Horizontal	L2x2x3/16	397	-2702.76	11719.00	23.1	Pass
T14	202 - 182	Horizontal	L2x2x3/16	422	-3073.59	11763.60	26.1	Pass
T15	182 - 162	Horizontal	L2x2x3/16	455	-3881.16	11763.60	33.0	Pass
T16	162 - 142	Horizontal	L2x2x3/16	494	-3910.57	11763.60	33.2	Pass
T17	142 - 122	Horizontal	L2x2x3/16	521	-3910.57	11763.60	33.2	Pass
T18	122 - 102	Horizontal	L2x2x3/16	562	-3637.16	11763.60	30.9	Pass
T19	102 - 82	Horizontal	L2x2x3/16	593	-3595.94	11763.60	30.6	Pass
T20	82 - 62	Horizontal	L2x2x3/16	620	-3595.94	11763.60	30.6	Pass
T21	62 - 42	Horizontal	L2x2x3/16	654	-3250.40	11763.60	27.6	Pass
T22	42 - 22	Horizontal	L2x2x3/16	687	-3345.12	11763.60	28.4	Pass
T23	22 - 2	Horizontal	L2x2x3/16	720	-3345.12	11763.60	28.4	Pass
T1	454 - 442	Guy A@454	1	751	45640.60	62700.00	72.8	Pass
T4	402 - 382	Guy A@386	1	754	46840.80	62700.00	74.7	Pass
T7	342 - 322	Guy A@326	7/8	757	38926.50	47820.00	81.4	Pass
T10	282 - 262	Guy A@266	7/8	760	44501.70	47820.00	93.1	Pass
T13	222 - 202	Guy A@214	7/8	763	43105.00	47820.00	90.1	Pass
T16	162 - 142	Guy A@162	7/8	766	42724.00	47820.00	89.3	Pass
T19	102 - 82	Guy A@102	11/16	769	26631.60	30000.00	88.8	Pass
T21	62 - 42	Guy A@50	1/2	772	13538.20	16140.00	83.9	Pass
T1	454 - 442	Guy B@454	1	750	44716.70	62700.00	71.3	Pass
T4	402 - 382	Guy B@386	1	753	46356.10	62700.00	73.9	Pass
T7	342 - 322	Guy B@326	7/8	756	38954.60	47820.00	81.5	Pass
T10	282 - 262	Guy B@266	7/8	759	44536.50	47820.00	93.1	Pass
T13	222 - 202	Guy B@214	7/8	762	43084.10	47820.00	90.1	Pass
T16	162 - 142	Guy B@162	7/8	765	42686.60	47820.00	89.3	Pass
T19	102 - 82	Guy B@102	11/16	768	26606.20	30000.00	88.7	Pass
T21	62 - 42	Guy B@50	1/2	771	13536.50	16140.00	83.9	Pass
T1	454 - 442	Guy C@454	1	749	45772.20	62700.00	73.0	Pass
T4	402 - 382	Guy C@386	1	752	46855.00	62700.00	74.7	Pass
T7	342 - 322	Guy C@326	7/8	755	38451.80	47820.00	80.4	Pass
T10	282 - 262	Guy C@266	7/8	758	42559.40	47820.00	89.0	Pass
T13	222 - 202	Guy C@214	7/8	761	40116.60	47820.00	83.9	Pass
T16	162 - 142	Guy C@162	7/8	764	38449.10	47820.00	80.4	Pass
T19	102 - 82	Guy C@102	11/16	767	23343.50	30000.00	77.8	Pass
T21	62 - 42	Guy C@50	1/2	770	11898.30	16140.00	73.7	Pass
T1	454 - 442	Top Guy Pull-Off@454	L2 1/2x2 1/2x3/8	7	-0.55	35043.50	0.2	Pass
T4	402 - 382	Top Guy Pull-Off@386	L2 1/2x2 1/2x3/8	98	9639.53	45736.20	21.1	Pass
T7	342 - 322	Top Guy Pull-Off@326	L2 1/2x2 1/2x3/8	199	9575.96	45736.20	20.9	Pass
T10	282 - 262	Top Guy Pull-Off@266	L2 1/2x2 1/2x3/8	296	13234.10	45736.20	28.9	Pass
T13	222 - 202	Top Guy Pull-Off@214	L2 1/2x2 1/2x3/8	409	13119.90	45736.20	28.7	Pass
T16	162 - 142	Top Guy Pull-Off@162	L2 1/2x2 1/2x3/8	488	15770.90	47265.50	33.4	Pass
T19	102 - 82	Top Guy Pull-Off@102	L2 1/2x2 1/2x3/8	589	12955.50	47265.50	27.4	Pass
T21	62 - 42	Top Guy Pull-Off@50	L2 1/2x2 1/2x3/8	665	8375.26	45736.20	18.3	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
							Summary	
						Pole (L1)	61.8	Pass
						Leg (T16)	95.8	Pass
						Diagonal (T7)	83.8	Pass
						Horizontal (T16)	33.2	Pass
						Guy A (T10)	93.1	Pass
						Guy B (T10)	93.1	Pass
						Guy C (T10)	89.0	Pass
						Top Guy Pull-Off (T16)	33.4	Pass
						Bolt Checks	96.5	Pass
						RATING =	**96.5**	**Pass**

Pier and Pad Foundation

Project #:	28758
Site Name:	CT72XC033

TIA-222 Revision:	G
Tower Type:	Guyed

Top & Bot. Pad Rein. Different?:	☐
Block Foundation?:	☐

Superstructure Analysis Reactions		
Compression, P_{comp}:	540.29	kips
Base Shear, Vu_comp:	3.14	kips
Moment, M_u:		ft-kips
Tower Height, **H**:	454	ft
BP Dist. Above Fdn, bp_{dist}:	3	in
Bolt Circle / Bearing Plate Width, **BC**:	10	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, **dpier**:	6	ft
Ext. Above Grade, **E**:	0.67	ft
Pier Rebar Size, **Sc**:	7	
Pier Rebar Quantity, **mc**:	34	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	13	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	7.33	ft
Pad Width, **W**:	13.5	ft
Pad Thickness, **T**:	2	ft
Pad Rebar Size (Bottom), **Sp**:	7	
Pad Rebar Quantity (Bottom), **mp**:	12	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60000	psi
Concrete Compressive Strength, **F'c**:	3000	psi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	113	pcf
Ultimate Gross Bearing, Qult:	22.125	ksf
Cohesion, **Cu**:	3.475	ksf
Friction Angle, φ:		degrees
SPT Blow Count, N_{blows}:	21	
Base Friction, μ:	0.3	
Neglected Depth, **N**:	3.33	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	None	ft

<--Toggle between Gross and Net

Foundation Analysis Checks	Capacity	Demand	Rating	Check
Lateral (Sliding) (kips)	348.82	3.14	**0.9%**	**Pass**
Bearing Pressure (ksf)	13.28	4.15	**31.3%**	**Pass**
*Overturning (kip*ft)*	3034.80	25.91	**0.9%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	3763.13	18.84	**0.5%**	**Pass**
Pier Compression (kip)	17184.96	579.17	**3.4%**	**Pass**
*Pad Flexure (kip*ft)*	620.93	292.99	**47.2%**	**Pass**
Pad Shear - 1-way (kips)	262.03	87.95	**33.6%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.057	**34.5%**	**Pass**

Soil Rating:	**31.3%**
Structural Rating:	**47.2%**

Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

Project #:	28758
Site Name:	CT72XC033
Location:	*Inner A*
TIA-222 Revision:	G

Design Reactions		
Shear, **S**:	79.50	kips
Uplift, **Ua**:	93.44	kips
Resultant Force, **Rf**:	122.7	kips
Tower Height, **H**:	495.00	ft
Guy Anchor Radius, **R**:	120.00	ft
Resultant Angle to Horizontal, **θ**:	49.6	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, **Da**:	10.9	ft
Anchor Width, **Wa**:	7.5	ft
Anchor Thickness, **Ta**:	3.0	ft
Anchor Length, **La**:	17.0	ft
Concrete Volume, **Vc**:	14.2	yd^3
Toe Width, **toe**:	0	ft
Guyed Anchor Top Rebar Size, **Sat**:	6	
No. of Bars in Top of Block:	8	
Guyed Anchor Front Rebar Size, **Saf**:	6	
No. of Bars in Front of Block:	3	
Stirrup Size:	4	
Anchor Shaft Diameter, **ds**:		in
Anchor Shaft Quantity. **n**:		
Anchor Shaft Area Override:		in^2
Shear Lag Factor, **u**:		

Material Properties		
Rebar Grade, **Fy**:	60000	psi
Concrete Strength, **F'c**:	3000	psi
Wt. Avg.Concrete Density, **δx**:	0.131	kcf
Clear Cover, **cc**:	3	in
Anchor Shaft Grade, **Fy'**:	36	ksi
Anchor Shaft Ultimate Strength, **Fu'**:	58	ksi

Design Checks	Capacity	Demand	Rating	Check
Lateral Capacity (kips):	279.06	79.50	**28.5%**	**Pass**
Uplift Capacity (kips):	390.35	93.44	**23.9%**	**Pass**
*Lateral Flexural Capacity (ft*kips):*	509.02	168.94	**33.2%**	**Pass**
*Uplift Flexural Capacity (ft*kips):*	501.57	198.56	**39.6%**	**Pass**
Anchor Shaft (kips):	0.00	122.68	**#DIV/0!**	**#DIV/0!**

Frost Depth, **Fd**:	3.33	ft
Groundwater Level, **gw**:	10	ft

Soil Properties:	**No. of Soil Layers?**			9		
Layer	**φ, deg**	**cu, ksf**	**δ, kcf**	**d, ft**	**Ultimate fs (ksf)**	**N (blows/ft)**
1	28	0.000	0.113	2.00	0.040	
2	0	1.250	0.113	3.30	0.780	
3	0	2.500	0.113	5.00	1.250	
4	37	0.000	0.113	7.00	0.350	
5	41	0.000	0.118	10.00	0.570	
6	45	0.000	0.055	10.92	0.800	
7						
8						
9						

*key: φ = *Internal Angle of Friction*

cu = Cohesion / Undrained Shear Strength

δ = *Buoyant Soil Unit Weight*

d = Depth to Bottom of Layer

Ultimate fs = Geotechnical Report-provided skin friction / adhesion

N = SPT Blow Count

Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

Project #:	28758
Site Name:	CT72XC033
Location:	*Inner B*
TIA-222 Revision:	G

Design Reactions		
Shear, **S**:	79.45	kips
Uplift, **Ua**:	93.37	kips
Resultant Force, **Rf**:	122.6	kips
Tower Height, **H**:	495.00	ft
Guy Anchor Radius, **R**:	120.00	ft
Resultant Angle to Horizontal, **θ**:	49.6	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, **Da**:	10.8	ft
Anchor Width, **Wa**:	8.0	ft
Anchor Thickness, **Ta**:	3.0	ft
Anchor Length, **La**:	17.0	ft
Concrete Volume, **Vc**:	15.1	yd^3
Toe Width, **toe**:	0	ft
Guyed Anchor Top Rebar Size, **Sat**:	6	
No. of Bars in Top of Block:	8	
Guyed Anchor Front Rebar Size, **Saf**:	6	
No. of Bars in Front of Block:	3	
Stirrup Size:	4	
Anchor Shaft Diameter, **ds**:		in
Anchor Shaft Quantity. **n**:		
Anchor Shaft Area Override:		in^2
Shear Lag Factor, **u**:		

Material Properties		
Rebar Grade, **Fy**:	60000	psi
Concrete Strength, **F'c**:	3000	psi
Wt. Avg.Concrete Density, **δx**:	0.088	kcf
Clear Cover, **cc**:	3	in
Anchor Shaft Grade, **Fy'**:	36	ksi
Anchor Shaft Ultimate Strength, **Fu'**:	58	ksi

Design Checks	Capacity	Demand	Rating	Check
Lateral Capacity (kips):	360.96	79.45	**22.0%**	**Pass**
Uplift Capacity (kips):	331.13	93.37	**28.2%**	**Pass**
*Lateral Flexural Capacity (ft*kips):*	544.66	168.83	**31.0%**	**Pass**
*Uplift Flexural Capacity (ft*kips):*	502.03	198.41	**39.5%**	**Pass**
Anchor Shaft (kips):	0.00	122.60	**#DIV/0!**	**#DIV/0!**

Frost Depth, **Fd**:	3.33	ft
Groundwater Level, **gw**:	2	ft

Soil Properties:	**No. of Soil Layers?**			9		
Layer	**φ, deg**	**cu, ksf**	**δ, kcf**	**d, ft**	**Ultimate fs (ksf)**	**N (blows/ft)**
1	28	0.000	0.100	2.00	0.030	
2	0	1.250	0.050	3.30	0.770	
3	0	2.250	0.050	5.00	1.120	
4	36	0.000	0.050	7.00	0.200	
5	0	2.325	0.055	10.00	1.160	
6	0	3.000	0.055	10.79	1.500	
7						
8						
9						

*key: φ = *Internal Angle of Friction*

cu = Cohesion / Undrained Shear Strength

δ = *Buoyant Soil Unit Weight*

d = Depth to Bottom of Layer

Ultimate fs = Geotechnical Report-provided skin friction / adhesion

N = SPT Blow Count

Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

Project #:	28758
Site Name:	CT72XC033
Location:	*Inner C*
TIA-222 Revision:	G

Design Reactions		
Shear, **S**:	71.45	kips
Uplift, **Ua**:	84.65	kips
Resultant Force, **Rf**:	110.8	kips
Tower Height, **H**:	495.00	ft
Guy Anchor Radius, **R**:	120.00	ft
Resultant Angle to Horizontal, **θ**:	49.8	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, **Da**:	11.9	ft
Anchor Width, **Wa**:	7.5	ft
Anchor Thickness, **Ta**:	3.0	ft
Anchor Length, **La**:	17.0	ft
Concrete Volume, **Vc**:	14.2	yd^3
Toe Width, **toe**:	0	ft
Guyed Anchor Top Rebar Size, **Sat**:	6	
No. of Bars in Top of Block:	8	
Guyed Anchor Front Rebar Size, **Saf**:	6	
No. of Bars in Front of Block:	3	
Stirrup Size:	4	
Anchor Shaft Diameter, **ds**:		in
Anchor Shaft Quantity. **n**:		
Anchor Shaft Area Override:		in^2
Shear Lag Factor, **u**:		

Material Properties		
Rebar Grade, **Fy**:	60000	psi
Concrete Strength, **F'c**:	3000	psi
Wt. Avg.Concrete Density, **δx**:	0.088	kcf
Clear Cover, **cc**:	3	in
Anchor Shaft Grade, **Fy'**:	36	ksi
Anchor Shaft Ultimate Strength, **Fu'**:	58	ksi

Design Checks	Capacity	Demand	Rating	Check
Lateral Capacity (kips):	402.38	71.45	**17.8%**	**Pass**
Uplift Capacity (kips):	430.83	84.65	**19.6%**	**Pass**
*Lateral Flexural Capacity (ft*kips):*	509.02	151.83	**29.8%**	**Pass**
*Uplift Flexural Capacity (ft*kips):*	501.57	179.88	**35.9%**	**Pass**
Anchor Shaft (kips):	0.00	110.77	**#DIV/0!**	**#DIV/0!**

Frost Depth, **Fd**:	3.33	ft
Groundwater Level, **gw**:	2	ft

Soil Properties:	No. of Soil Layers?			9		
Layer	**φ, deg**	**cu, ksf**	**δ, kcf**	**d, ft**	**Ultimate fs (ksf)**	**N (blows/ft)**
1	28	0.000	0.110	3.30	0.060	
2	30	0.000	0.110	5.00	0.180	
3	0	2.175	0.112	7.00	1.080	
4	0	2.100	0.112	10.00	1.050	
5	0	3.425	0.118	11.92	1.710	
6						
7						
8						
9						

*key: φ = *Internal Angle of Friction*

cu = Cohesion / Undrained Shear Strength

δ = *Buoyant Soil Unit Weight*

d = Depth to Bottom of Layer

Ultimate fs = Geotechnical Report-provided skin friction / adhesion

N = SPT Blow Count

Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

Project #:	28758
Site Name:	CT72XC033
Location:	*Outer A*
TIA-222 Revision:	G

Design Reactions		
Shear, **S**:	71.01	kips
Uplift, **Ua**:	156.03	kips
Resultant Force, **Rf**:	171.4	kips
Tower Height, **H**:	495.00	ft
Guy Anchor Radius, **R**:	148.00	ft
Resultant Angle to Horizontal, **θ**:	65.5	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, **Da**:	10.8	ft
Anchor Width, **Wa**:	12.5	ft
Anchor Thickness, **Ta**:	3.0	ft
Anchor Length, **La**:	28.0	ft
Concrete Volume, **Vc**:	38.9	yd^3
Toe Width, **toe**:	0	ft
Guyed Anchor Top Rebar Size, **Sat**:	6	
No. of Bars in Top of Block:	13	
Guyed Anchor Front Rebar Size, **Saf**:	6	
No. of Bars in Front of Block:	3	
Stirrup Size:	4	
Anchor Shaft Diameter, **ds**:		in
Anchor Shaft Quantity. **n**:		
Anchor Shaft Area Override:		in^2
Shear Lag Factor, **u**:		

Material Properties		
Rebar Grade, **Fy**:	60000	psi
Concrete Strength, **F'c**:	3000	psi
Wt. Avg.Concrete Density, **δx**:	0.088	kcf
Clear Cover, **cc**:	3	in
Anchor Shaft Grade, **Fy'**:	36	ksi
Anchor Shaft Ultimate Strength, **Fu'**:	58	ksi

Design Checks	Capacity	Demand	Rating	Check
Lateral Capacity (kips):	686.62	71.01	**10.3%**	**Pass**
Uplift Capacity (kips):	625.67	156.03	**24.9%**	**Pass**
*Lateral Flexural Capacity (ft*kips):*	865.42	248.54	**28.7%**	**Pass**
*Uplift Flexural Capacity (ft*kips):*	815.35	546.11	**67.0%**	**Pass**
Anchor Shaft (kips):	0.00	171.43	**#DIV/0!**	**#DIV/0!**

Frost Depth, **Fd**:	3.33	ft
Groundwater Level, **gw**:	2	ft

Soil Properties:	No. of Soil Layers?			9		
Layer	**φ, deg**	**cu, ksf**	**δ, kcf**	**d, ft**	**Ultimate fs (ksf)**	**N (blows/ft)**
1	28	0.000	0.100	2.00	0.030	
2	0	1.125	0.050	3.30	0.770	
3	0	2.250	0.050	5.00	1.120	
4	36	0.000	0.050	7.00	0.200	
5	0	2.325	0.055	10.00	1.160	
6	0	3.000	0.055	10.83	1.500	
7						
8						
9						

*key: φ = *Internal Angle of Friction*

cu = Cohesion / Undrained Shear Strength

δ = *Buoyant Soil Unit Weight*

d = Depth to Bottom of Layer

Ultimate fs = Geotechnical Report-provided skin friction / adhesion

N = SPT Blow Count

Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

Project #:	28758
Site Name:	CT72XC033
Location:	*Outer B*
TIA-222 Revision:	G

Design Reactions		
Shear, **S**:	71.06	kips
Uplift, **Ua**:	156.14	kips
Resultant Force, **Rf**:	171.5	kips
Tower Height, **H**:	495.00	ft
Guy Anchor Radius, **R**:	148.00	ft
Resultant Angle to Horizontal, **θ**:	65.5	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, **Da**:	10.8	ft
Anchor Width, **Wa**:	12.5	ft
Anchor Thickness, **Ta**:	3.0	ft
Anchor Length, **La**:	28.0	ft
Concrete Volume, **Vc**:	38.9	yd^3
Toe Width, **toe**:	0	ft
Guyed Anchor Top Rebar Size, **Sat**:	6	
No. of Bars in Top of Block:	13	
Guyed Anchor Front Rebar Size, **Saf**:	6	
No. of Bars in Front of Block:	3	
Stirrup Size:	4	
Anchor Shaft Diameter, **ds**:		in
Anchor Shaft Quantity. **n**:		
Anchor Shaft Area Override:		in^2
Shear Lag Factor, **u**:		

Material Properties		
Rebar Grade, **Fy**:	60000	psi
Concrete Strength, **F'c**:	3000	psi
Wt. Avg.Concrete Density, **δx**:	0.133	kcf
Clear Cover, **cc**:	3	in
Anchor Shaft Grade, **Fy'**:	36	ksi
Anchor Shaft Ultimate Strength, **Fu'**:	58	ksi

Design Checks	Capacity	Demand	Rating	Check
Lateral Capacity (kips):	506.17	71.06	**14.0%**	**Pass**
Uplift Capacity (kips):	774.29	156.14	**20.2%**	**Pass**
*Lateral Flexural Capacity (ft*kips):*	865.42	248.71	**28.7%**	**Pass**
*Uplift Flexural Capacity (ft*kips):*	815.35	546.49	**67.0%**	**Pass**
Anchor Shaft (kips):	0.00	171.55	**#DIV/0!**	**#DIV/0!**

Frost Depth, **Fd**:	3.33	ft
Groundwater Level, **gw**:	10	ft

Soil Properties:	No. of Soil Layers?			9		
Layer	**φ, deg**	**cu, ksf**	**δ, kcf**	**d, ft**	**Ultimate fs (ksf)**	**N (blows/ft)**
1	28	0.000	0.113	2.00	0.040	
2	0	1.250	0.113	3.30	0.780	
3	0	2.500	0.113	5.00	1.250	
4	37	0.000	0.113	7.00	0.350	
5	41	0.000	0.118	10.00	0.570	
6	45	0.000	0.055	10.83	0.800	
7						
8						
9						

*key: φ = *Internal Angle of Friction*

cu = Cohesion / Undrained Shear Strength

δ = *Buoyant Soil Unit Weight*

d = Depth to Bottom of Layer

Ultimate fs = Geotechnical Report-provided skin friction / adhesion

N = SPT Blow Count

Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

Project #:	28758
Site Name:	CT72XC033
Location:	*Outer C*
TIA-222 Revision:	G

Design Reactions		
Shear, **S**:	70.26	kips
Uplift, **Ua**:	155.21	kips
Resultant Force, **Rf**:	170.4	kips
Tower Height, **H**:	495.00	ft
Guy Anchor Radius, **R**:	148.00	ft
Resultant Angle to Horizontal, **θ**:	65.6	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, **Da**:	10.8	ft
Anchor Width, **Wa**:	12.5	ft
Anchor Thickness, **Ta**:	3.0	ft
Anchor Length, **La**:	28.0	ft
Concrete Volume, **Vc**:	38.9	yd^3
Toe Width, **toe**:	0	ft
Guyed Anchor Top Rebar Size, **Sat**:	6	
No. of Bars in Top of Block:	13	
Guyed Anchor Front Rebar Size, **Saf**:	6	
No. of Bars in Front of Block:	3	
Stirrup Size:	4	
Anchor Shaft Diameter, **ds**:		in
Anchor Shaft Quantity. **n**:		
Anchor Shaft Area Override:		in^2
Shear Lag Factor, **u**:		

Material Properties		
Rebar Grade, **Fy**:	60000	psi
Concrete Strength, **F'c**:	3000	psi
Wt. Avg.Concrete Density, **δx**:	0.150	kcf
Clear Cover, **cc**:	3	in
Anchor Shaft Grade, **Fy'**:	36	ksi
Anchor Shaft Ultimate Strength, **Fu'**:	58	ksi

Design Checks	Capacity	Demand	Rating	Check
Lateral Capacity (kips):	680.25	70.26	**10.3%**	**Pass**
Uplift Capacity (kips):	801.68	155.21	**19.4%**	**Pass**
*Lateral Flexural Capacity (ft*kips):*	865.42	245.91	**28.4%**	**Pass**
*Uplift Flexural Capacity (ft*kips):*	815.35	543.24	**66.6%**	**Pass**
Anchor Shaft (kips):	0.00	170.37	**#DIV/0!**	**#DIV/0!**

Frost Depth, **Fd**:	3.33	ft
Groundwater Level, **gw**:	13	ft

Soil Properties:	**No. of Soil Layers?**			9		
Layer	**φ, deg**	**cu, ksf**	**δ, kcf**	**d, ft**	**Ultimate fs (ksf)**	**N (blows/ft)**
1	28	0.000	0.110	3.30	0.060	
2	30	0.000	0.110	5.00	0.180	
3	0	2.175	0.112	7.00	1.080	
4	0	2.100	0.112	10.00	1.050	
5	0	3.425	0.118	10.83	1.710	
6						
7						
8						
9						

*key: φ = *Internal Angle of Friction*

cu = Cohesion / Undrained Shear Strength

δ = *Buoyant Soil Unit Weight*

d = Depth to Bottom of Layer

Ultimate fs = Geotechnical Report-provided skin friction / adhesion

N = SPT Blow Count

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Job	CT72XC033
Project	28758
By	KLP
Date	7/24/18

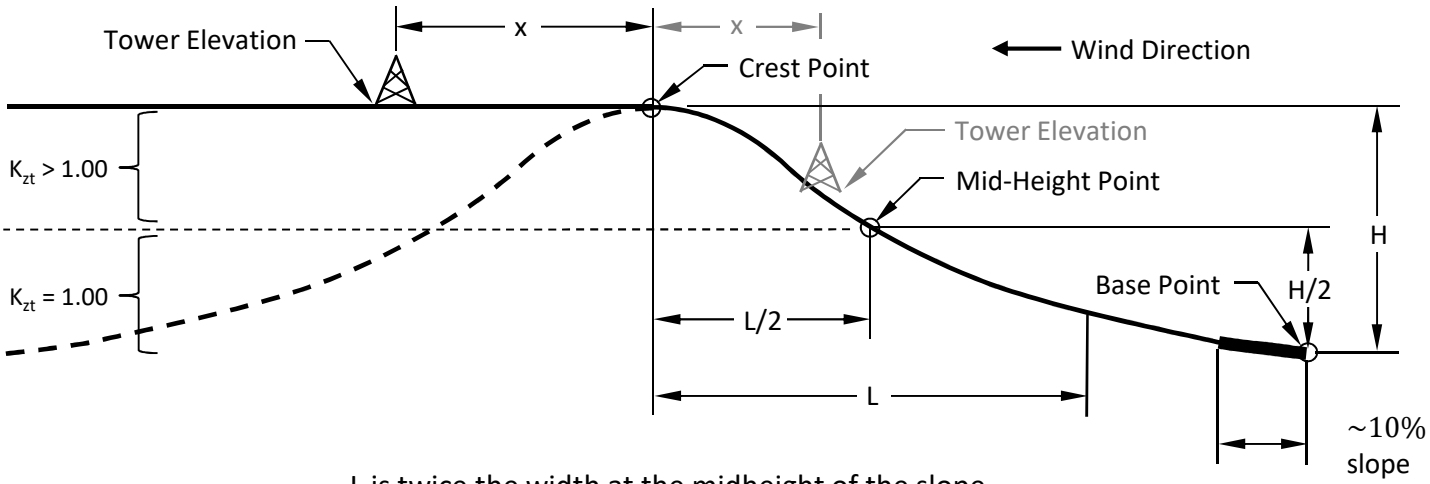
Topographical Multipliers

2.6.2 Topographic Factor KT

Elevations are Above Mean Sea Level

Method :	SEAW RSM-03
Topographic Feature :	Continuous Ridge

Exp :	C		Exposure Category	Override z Value
Original Input z :	257	ft	Height of antennas above ground level	ft
CP Elev :	717	ft	Crest Point Elevation	Override Crest Ht
BP Elev :	423	ft	Base Point Elevation	ft
MHP Elev :	570	ft	Mid-Height Point Elevation	
L/2 :	1194	ft	Crest to Mid-Height Distance	
TP Elev :	717	ft	Tower Point Elevation	Potential Tower Dist. x
x :	0	ft	Tower Distance from Crest Line	0.0 ft
H :	294	ft	Crest Height	
L :	2388	ft	Slope Distance	
x :	0	ft	Distance from Crest Line	
KT :	1.41		Topographic Factor at z = 257.0 ft	



L is twice the width at the midheight of the slope

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Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V :	93	mph	Basic Wind Speed (Annex B)
z :	257	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	1.54		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.41		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	45.9	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections

Mount & Antenna Wind Loads

Appurtenance	Height	Width	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
NNVV-65B-R4	72.0	19.6	3.7	Flat	1.252	9.80	562.9	
AAHC	25.6	19.7	1.3	Flat	1.200	3.51	193.2	
1900MHz 4x45W RRH	25.1	11.1	2.3	Flat	1.200	1.93	106.5	
800MHz 2x50W RRH	19.0	13.0	1.5	Flat	1.200	1.72	94.4	
Pipe2-1/2STD x 12.5 ft	150.0	2.9	52.2	Round	1.167	2.99	160.3	12.8
Pipe2STD x 8 ft	96.0	2.4	40.4	Round	1.200	1.58	87.2	10.9
Pipe2STD x 4.75 ft	57.0	2.4	24.0	Round	1.178	0.94	50.8	10.7
Pipe2STD x 2.8 ft	33.6	2.4	14.1	Round	0.959	0.55	24.4	8.7
Pipe2STD x 2.58 ft	31.0	2.4	13.0	Round	0.934	0.51	21.9	8.5
SR 3/4 x 3.9 ft	46.8	0.8	62.4	Round	1.200	0.24	13.4	3.4
SR 5/8 x 3.33 ft	40.0	0.6	63.9	Round	1.200	0.17	9.5	2.9
Pipe2STD x 4.75 ft	57.0	2.4	24.0	Round	1.178	0.94	50.8	10.7
Pipe2STD x 7.25 ft	87.0	2.4	36.6	Round	1.200	1.43	79.0	10.9

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Project	28758
By	KLP
Date	7/24/18

Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V :	93	mph	Basic Wind Speed (Annex B)
z :	257	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	1.54		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.41		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	45.9	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections

Mount & Antenna Wind Loads

Appurtenance	Height	Depth	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
NNVV-65B-R4	72.0	7.8	9.2	Flat	1.474	3.90	263.7	
AAHC	25.6	9.7	2.7	Flat	1.207	1.72	95.1	
1900MHz 4x45W RRH	25.1	10.7	2.3	Flat	1.200	1.86	102.6	
800MHz 2x50W RRH	19.0	12.2	1.6	Flat	1.200	1.61	88.6	
Pipe2-1/2STD x 12.5 ft	150.0	2.9	52.2	Round	1.167	2.99	160.3	12.8
Pipe2STD x 8 ft	96.0	2.4	40.4	Round	1.200	1.58	87.2	10.9
Pipe2STD x 4.75 ft	57.0	2.4	24.0	Round	1.178	0.94	50.8	10.7
Pipe2STD x 2.8 ft	33.6	2.4	14.1	Round	0.959	0.55	24.4	8.7
Pipe2STD x 2.58 ft	31.0	2.4	13.0	Round	0.934	0.51	21.9	8.5
SR 3/4 x 3.9 ft	46.8	0.8	62.4	Round	1.200	0.24	13.4	3.4
SR 5/8 x 3.33 ft	40.0	0.6	63.9	Round	1.200	0.17	9.5	2.9
Pipe2STD x 4.75 ft	57.0	2.4	24.0	Round	1.178	0.94	50.8	10.7
Pipe2STD x 7.25 ft	87.0	2.4	36.6	Round	1.200	1.43	79.0	10.9

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Job	CT72XC033
Project	28758
By	KLP
Date	7/24/18

Ice Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V_i :	50	mph	Basic Wind Speed (Annex B)
z :	257	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	1.54		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.41		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	13.26	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections
t_{iz} :	2.08	in	Design Thickness of Radial Ice at Height z (2.6.8)

Mount & Antenna Ice Wind Loads

Appurtenance	Height	Width	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
NNVV-65B-R4	76.2	23.8	3.2	Flat	1.231	12.56	205.1	
AAHC	29.8	23.9	1.2	Flat	1.200	4.94	78.6	
1900MHz 4x45W RRH	29.3	15.3	1.9	Flat	1.200	3.10	49.3	
800MHz 2x50W RRH	23.2	17.2	1.3	Flat	1.200	2.76	43.9	
Pipe2-1/2STD x 12.5 ft	154.2	7.0	21.9	Round	1.132	7.53	112.9	8.8
Pipe2STD x 8 ft	100.2	6.5	15.3	Round	0.985	4.54	59.3	7.1
Pipe2STD x 4.75 ft	61.2	6.5	9.4	Round	0.853	2.77	31.4	6.2
Pipe2STD x 2.8 ft	37.8	6.5	5.8	Round	0.773	1.71	17.5	5.6
Pipe2STD x 2.58 ft	35.1	6.5	5.4	Round	0.764	1.59	16.1	5.5
SR 3/4 x 3.9 ft	51.0	4.9	10.4	Round	0.875	1.74	20.1	4.7
SR 5/8 x 3.33 ft	44.1	4.8	9.2	Round	0.849	1.46	16.5	4.5
Pipe2STD x 4.75 ft	61.2	6.5	9.4	Round	0.853	2.77	31.4	6.2
Pipe2STD x 7.25 ft	91.2	6.5	14.0	Round	0.955	4.13	52.3	6.9

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Job	CT72XC033
Project	28758
By	KLP
Date	7/24/18

Ice Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V_i :	50	mph	Basic Wind Speed (Annex B)
z :	257	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	1.54		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.41		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	13.26	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections
t_{iz} :	2.08	in	Design Thickness of Radial Ice at Height z (2.6.8)

Mount & Antenna Ice Wind Loads

Appurtenance	Height	Depth	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
NNVV-65B-R4	76.2	12.0	6.4	Flat	1.372	6.32	115.0	
AAHC	29.8	13.8	2.2	Flat	1.200	2.86	45.4	
1900MHz 4x45W RRH	29.3	14.8	2.0	Flat	1.200	3.02	48.0	
800MHz 2x50W RRH	23.2	16.4	1.4	Flat	1.200	2.63	41.8	
Pipe2-1/2STD x 12.5 ft	154.2	7.0	21.9	Round	1.132	7.53	112.9	8.8
Pipe2STD x 8 ft	100.2	6.5	15.3	Round	0.985	4.54	59.3	7.1
Pipe2STD x 4.75 ft	61.2	6.5	9.4	Round	0.853	2.77	31.4	6.2
Pipe2STD x 2.8 ft	37.8	6.5	5.8	Round	0.773	1.71	17.5	5.6
Pipe2STD x 2.58 ft	35.1	6.5	5.4	Round	0.764	1.59	16.1	5.5
SR 3/4 x 3.9 ft	51.0	4.9	10.4	Round	0.875	1.74	20.1	4.7
SR 5/8 x 3.33 ft	44.1	4.8	9.2	Round	0.849	1.46	16.5	4.5
Pipe2STD x 4.75 ft	61.2	6.5	9.4	Round	0.853	2.77	31.4	6.2
Pipe2STD x 7.25 ft	91.2	6.5	14.0	Round	0.955	4.13	52.3	6.9

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Job	CT72XC033
Project	28758
By	KLP
Date	7/24/18

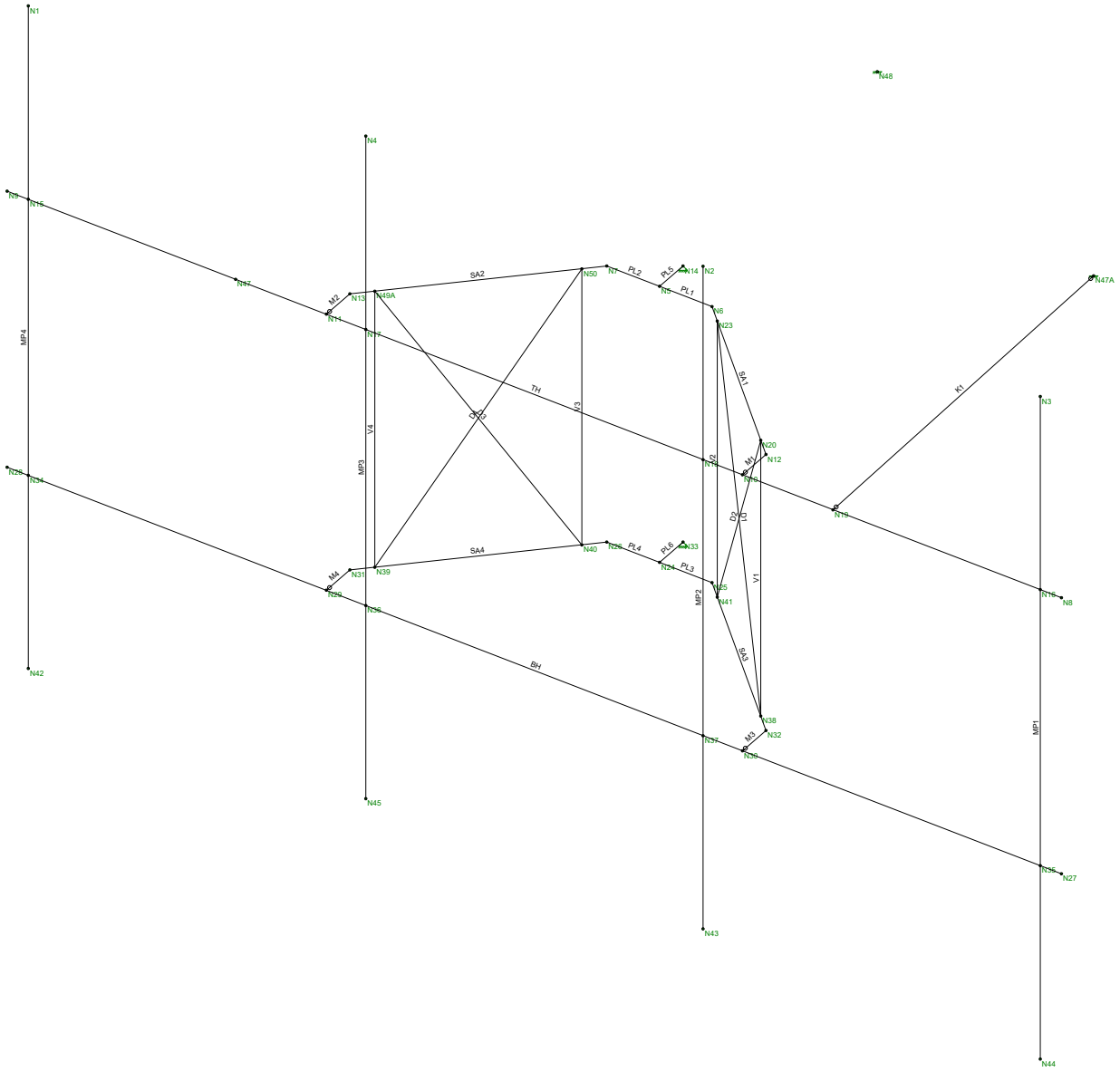
Ice Load on Antennas TIA-222-G

Ice Weight :	56	pcf	Ice Density
t_i :	0.75		Design Ice Thickness
Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V_i :	50	mph	Basic Wind Speed (Annex B)
z :	257	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_{iz} :	1.23		Height Escalation Factor for Ice Thickness
K_{zt} :	1.41		Topographic Factor (2.6.6.4)
t_{iz} :	2.08	in	Design Thickness of Radial Ice at Height z (2.6.8)

Platform Grating :	None	
Ice Load :		psf

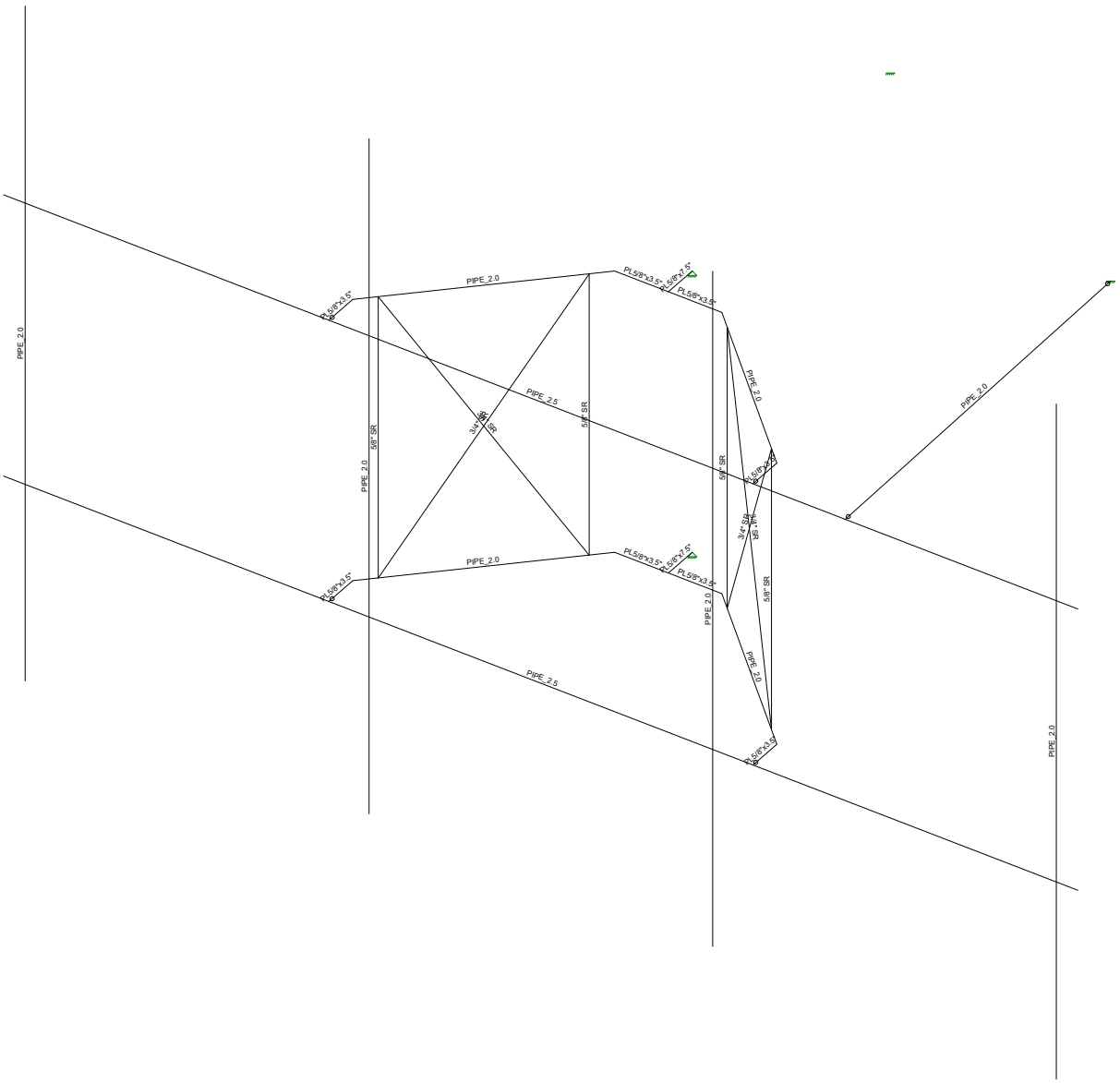
Mount & Antenna Ice Wind Loads

Appurtenance	Height	Width	Depth	Diam.	Area	Perim.	Ice Weight	
	in	*in*	*in*	*in*	*sq in*	*in*	*lb*	*plf*
NNVV-65B-R4	76.2	23.8	12.0	21.10	151.31	63.11	353.1	
AAHC	29.8	23.9	13.8	21.95	156.92	67.05	130.3	
1900MHz 4x45W RRH	29.3	15.3	14.8	15.41	114.19	51.89	92.9	
800MHz 2x50W RRH	23.2	17.2	16.4	17.83	129.98	58.71	80.0	
Pipe2-1/2STD x 12.5 ft	154.2	7.0	7.0	2.88	32.34	15.56	157.2	12.6
Pipe2STD x 8 ft	100.2	6.5	6.5	2.38	29.08	13.99	90.5	11.3
Pipe2STD x 4.75 ft	61.2	6.5	6.5	2.38	29.08	13.99	53.7	11.3
Pipe2STD x 2.8 ft	37.8	6.5	6.5	2.38	29.08	13.99	31.7	11.3
Pipe2STD x 2.58 ft	35.1	6.5	6.5	2.38	29.08	13.99	29.2	11.3
SR 3/4 x 3.9 ft	51.0	4.9	4.9	0.75	18.47	8.89	28.0	7.2
SR 5/8 x 3.33 ft	44.1	4.8	4.8	0.63	17.65	8.49	22.9	6.9
Pipe2STD x 4.75 ft	61.2	6.5	6.5	2.38	29.08	13.99	53.7	11.3
Pipe2STD x 7.25 ft	91.2	6.5	6.5	2.38	29.08	13.99	82.0	11.3



Envelope Only Solution

Ramaker & Associates	CT72XC033	SK - 1
KLP		July 24, 2018 at 8:22 AM
28758		28758 Alpha & Beta Mount Rev3.r3d



Envelope Only Solution

Ramaker & Associates	CT72XC033	SK - 2
KLP		July 24, 2018 at 8:23 AM
28758		28758 Alpha & Beta Mount Rev3.r3d

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E..Density[k/ft...		Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	Gr. 33	29000	11154	.3	.65	.49	33	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
5	A500 Gr.B RND	29000	11154	.3	.65	.49	42	1.4	58	1.3
6	A500 Gr.B Rect	29000	11154	.3	.65	.49	46	1.4	58	1.3
7	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
8	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Pipe 2.5	PIPE_2.5	Beam	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
2	PL5/8"x3.5"	PL5/8"x3.5"	Beam	RECT	A36 Gr.36	Typical	2.188	.071	2.233	.253
3	PL5/8"x7.5"	PL5/8"x7.5"	Beam	RECT	A36 Gr.36	Typical	4.688	.153	21.973	.578
4	Pipe 2.0	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
5	SR3/4"	3/4" SR	Beam	BAR	A36 Gr.36	Typical	.442	.016	.016	.031
6	SR5/8"	5/8" SR	Beam	BAR	A36 Gr.36	Typical	.307	.007	.007	.015
7	Pipe 4.0	PIPE_4.0	Beam	Pipe	A53 Gr.B	Typical	2.96	6.82	6.82	13.6

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	TH	N8	N9			Pipe 2.5	Beam	Pipe	A53 Gr.B	Typical
2	BH	N27	N28			Pipe 2.5	Beam	Pipe	A53 Gr.B	Typical
3	PL5	N5	N14		90	PL5/8"x7.5"	Beam	RECT	A36 Gr.36	Typical
4	PL6	N24	N33		90	PL5/8"x7.5"	Beam	RECT	A36 Gr.36	Typical
5	PL2	N7	N5		90	PL5/8"x3.5"	Beam	RECT	A36 Gr.36	Typical
6	PL1	N5	N6		90	PL5/8"x3.5"	Beam	RECT	A36 Gr.36	Typical
7	PL4	N26	N24		90	PL5/8"x3.5"	Beam	RECT	A36 Gr.36	Typical
8	PL3	N24	N25		90	PL5/8"x3.5"	Beam	RECT	A36 Gr.36	Typical
9	SA4	N31	N26			Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
10	SA1	N12	N6			Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
11	SA3	N32	N25			Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
12	M2	N11	N13		90	PL5/8"x3.5"	Beam	RECT	A36 Gr.36	Typical
13	M4	N29	N31		90	PL5/8"x3.5"	Beam	RECT	A36 Gr.36	Typical
14	M1	N10	N12		90	PL5/8"x3.5"	Beam	RECT	A36 Gr.36	Typical
15	M3	N30	N32		90	PL5/8"x3.5"	Beam	RECT	A36 Gr.36	Typical
16	V4	N49A	N39			SR5/8"	Beam	BAR	A36 Gr.36	Typical
17	V3	N50	N40			SR5/8"	Beam	BAR	A36 Gr.36	Typical
18	V1	N20	N38			SR5/8"	Beam	BAR	A36 Gr.36	Typical
19	V2	N23	N41			SR5/8"	Beam	BAR	A36 Gr.36	Typical
20	D3	N49A	N40			SR3/4"	Beam	BAR	A36 Gr.36	Typical
21	D4	N50	N39			SR3/4"	Beam	BAR	A36 Gr.36	Typical
22	D1	N23	N38			SR3/4"	Beam	BAR	A36 Gr.36	Typical
23	D2	N20	N41			SR3/4"	Beam	BAR	A36 Gr.36	Typical
24	MP4	N42	N1			Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
25	MP3	N45	N4			Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
26	MP2	N43	N2			Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
27	MP1	N44	N3			Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
28	SA2	N13	N7			Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
29	K1	N19	N47A			Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical
30	K2	N47	N48			Pipe 2.0	Beam	Pipe	A53 Gr.B	Typical

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribu..	Area(M...	Surface...
1	Dead Load	None		-1			6			
2	Antenna Wind 0	None					12			
3	Antenna Wind 30	None					12			
4	Antenna Wind 45	None					12			
5	Antenna Wind 60	None					12			
6	Antenna Wind 90	None					12			
7	Antenna Wind 120	None					12			
8	Antenna Wind 135	None					12			
9	Antenna Wind 150	None					12			
10	Antenna Wind 180	None					12			
11	Antenna Wind 210	None					12			
12	Antenna Wind 225	None					12			
13	Antenna Wind 240	None					12			
14	Antenna Wind 270	None					12			
15	Antenna Wind 300	None					12			
16	Antenna Wind 315	None					12			
17	Antenna Wind 330	None					12			
18	Antenna Ice Dead Load	None					6			
19	Antenna Wind w/Ice 0	None					12			
20	Antenna Wind w/Ice 30	None					12			
21	Antenna Wind w/Ice 45	None					12			
22	Antenna Wind w/Ice 60	None					12			
23	Antenna Wind w/Ice 90	None					12			
24	Antenna Wind w/Ice 120	None					12			
25	Antenna Wind w/Ice 135	None					12			
26	Antenna Wind w/Ice 150	None					12			
27	Antenna Wind w/Ice 180	None					12			
28	Antenna Wind w/Ice 210	None					12			
29	Antenna Wind w/Ice 225	None					12			
30	'Antenna Wind w/Ice 240	None					12			
31	Antenna Wind w/Ice 270	None					12			
32	Antenna Wind w/Ice 300	None					12			
33	Antenna Wind w/Ice 315	None					12			
34	Antenna Wind w/Ice 330	None					12			
35	Member Wind 0	None						40		
36	Member Wind 30	None						40		
37	Member Wind 45	None						40		
38	Member Wind 60	None						40		
39	Member Wind 90	None						40		
40	Member Wind 120	None						40		
41	Member Wind 135	None						40		
42	Member Wind 150	None						40		
43	Member Wind 180	None						40		
44	Member Wind 210	None						40		
45	Member Wind 225	None						40		
46	Member Wind 240	None						40		
47	Member Wind 270	None						40		
48	Member Wind 300	None						40		
49	Member Wind 315	None						40		
50	Member Wind 330	None						40		
51	Member Ice Dead Load	None						20		
52	Member Wind w/Ice 0	None						40		
53	Member Wind w/Ice 30	None						40		
54	Member Wind w/Ice 45	None						40		
55	Member Wind w/Ice 60	None						40		
56	Member Wind w/Ice 90	None						40		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribu..	Area(M...	Surface...
57	Member Wind w/Ice 120	None						40		
58	Member Wind w/Ice 135	None						40		
59	Member Wind w/Ice 150	None						40		
60	Member Wind w/Ice 180	None						40		
61	Member Wind w/Ice 210	None						40		
62	Member Wind w/Ice 225	None						40		
63	Member Wind w/Ice 240	None						40		
64	Member Wind w/Ice 270	None						40		
65	Member Wind w/Ice 300	None						40		
66	Member Wind w/Ice 315	None						40		
67	Member Wind w/Ice 330	None						40		
68	LV-1	None					1			
69	LV-2	None					1			
70	LV-3	None					1			
71	LV-4	None					1			
72	LV-5	None					1			
73	LV-6	None					1			
74	LV-7	None								
75	LV-8	None								
76	LV-9	None								
77	LV-10	None								
78	LV-11	None								
79	LV-12	None								
80	LV-13	None								
81	LV-14	None								
82	LV-15	None								
83	LM-1	None					1			
84	LM-2	None					1			
85	LM-3	None					1			
86	LM-4	None					1			
87	LM-5	None								
88	LM-6	None								
89	LM-7	None								
90	LM-8	None								
91	LM-9	None								
92	LM-10	None								
93	LM-11	None								
94	LM-12	None								
95	LM-13	None								
96	LM-14	None								
97	LM-15	None								

Load Combinations

	Description	...	PD..	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	F...	B...	F...	...	F...	...	F...	...	F...	...	F...	...	F...
1	1.4D	...	Y		1	1.4																		
2	0.9D + 1.6 (0-Wind)	...	Y		1	.9	2	1.6	35	1.6														
3	0.9D + 1.6 (30-Wind)	...	Y		1	.9	3	1.6	36	1.6														
4	0.9D + 1.6 (45-Wind)	...	Y		1	.9	4	1.6	37	1.6														
5	0.9D + 1.6 (60-Wind)	...	Y		1	.9	5	1.6	38	1.6														
6	0.9D + 1.6 (90-Wind)	...	Y		1	.9	6	1.6	39	1.6														
7	0.9D + 1.6 (120-Wind)	...	Y		1	.9	7	1.6	40	1.6														
8	0.9D + 1.6 (135-Wind)	...	Y		1	.9	8	1.6	41	1.6														
9	0.9D + 1.6 (150-Wind)	...	Y		1	.9	9	1.6	42	1.6														
10	0.9D + 1.6 (180-Wind)	...	Y		1	.9	10	1.6	43	1.6														
11	0.9D + 1.6 (210-Wind)	...	Y		1	.9	11	1.6	44	1.6														

Load Combinations (Continued)

	Description	...	PD...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	F...	B...	F...	...	F...	...	F...	...	F...	...	F...	...	F...
12	0.9D + 1.6 (225-Wind)	...	Y		1	.9	12	1.6	45	1.6														
13	0.9D + 1.6 (240-Wind)	...	Y		1	.9	13	1.6	46	1.6														
14	0.9D + 1.6 (270-Wind)	...	Y		1	.9	14	1.6	47	1.6														
15	0.9D + 1.6 (300-Wind)	...	Y		1	.9	15	1.6	48	1.6														
16	0.9D + 1.6 (315-Wind)	...	Y		1	.9	16	1.6	49	1.6														
17	0.9D + 1.6 (330-Wind)	...	Y		1	.9	17	1.6	50	1.6														
18	1.2D + 1.6 (0-Wind)	...	Y		1	1.2	2	1.6	35	1.6														
19	1.2D + 1.6 (30-Wind)	...	Y		1	1.2	3	1.6	36	1.6														
20	1.2D + 1.6 (45-Wind)	...	Y		1	1.2	4	1.6	37	1.6														
21	1.2D + 1.6 (60-Wind)	...	Y		1	1.2	5	1.6	38	1.6														
22	1.2D + 1.6 (90-Wind)	...	Y		1	1.2	6	1.6	39	1.6														
23	1.2D + 1.6 (120-Wind)	...	Y		1	1.2	7	1.6	40	1.6														
24	1.2D + 1.6 (135-Wind)	...	Y		1	1.2	8	1.6	41	1.6														
25	1.2D + 1.6 (150-Wind)	...	Y		1	1.2	9	1.6	42	1.6														
26	1.2D + 1.6 (180-Wind)	...	Y		1	1.2	10	1.6	43	1.6														
27	1.2D + 1.6 (210-Wind)	...	Y		1	1.2	11	1.6	44	1.6														
28	1.2D + 1.6 (225-Wind)	...	Y		1	1.2	12	1.6	45	1.6														
29	1.2D + 1.6 (240-Wind)	...	Y		1	1.2	13	1.6	46	1.6														
30	1.2D + 1.6 (270-Wind)	...	Y		1	1.2	14	1.6	47	1.6														
31	1.2D + 1.6 (300-Wind)	...	Y		1	1.2	15	1.6	48	1.6														
32	1.2D + 1.6 (315-Wind)	...	Y		1	1.2	16	1.6	49	1.6														
33	1.2D + 1.6 (330-Wind)	...	Y		1	1.2	17	1.6	50	1.6														
34	1.2D + 1.0Di + 1.0 (0-Wind Ice)	...	Y		1	1.2	18	1	51	1	19	1	52	1										
35	1.2D + 1.0Di + 1.0 (30-Wind Ice)	...	Y		1	1.2	18	1	51	1	20	1	53	1										
36	1.2D + 1.0Di + 1.0 (45-Wind Ice)	...	Y		1	1.2	18	1	51	1	21	1	54	1										
37	1.2D + 1.0Di + 1.0 (60-Wind Ice)	...	Y		1	1.2	18	1	51	1	22	1	55	1										
38	1.2D + 1.0Di + 1.0 (90-Wind Ice)	...	Y		1	1.2	18	1	51	1	23	1	56	1										
39	1.2D + 1.0Di + 1.0 (120-Wind Ice)	...	Y		1	1.2	18	1	51	1	24	1	57	1										
40	1.2D + 1.0Di + 1.0 (135-Wind Ice)	...	Y		1	1.2	18	1	51	1	25	1	58	1										
41	1.2D + 1.0Di + 1.0 (150-Wind Ice)	...	Y		1	1.2	18	1	51	1	26	1	59	1										
42	1.2D + 1.0Di + 1.0 (180-Wind Ice)	...	Y		1	1.2	18	1	51	1	27	1	60	1										
43	1.2D + 1.0Di + 1.0 (210-Wind Ice)	...	Y		1	1.2	18	1	51	1	28	1	61	1										
44	1.2D + 1.0Di + 1.0 (225-Wind Ice)	...	Y		1	1.2	18	1	51	1	29	1	62	1										
45	1.2D + 1.0Di + 1.0 (240-Wind Ice)	...	Y		1	1.2	18	1	51	1	30	1	63	1										
46	1.2D + 1.0Di + 1.0 (270-Wind Ice)	...	Y		1	1.2	18	1	51	1	31	1	64	1										
47	1.2D + 1.0Di + 1.0 (300-Wind Ice)	...	Y		1	1.2	18	1	51	1	32	1	65	1										
48	1.2D + 1.0Di + 1.0 (315-Wind Ice)	...	Y		1	1.2	18	1	51	1	33	1	66	1										
49	1.2D + 1.0Di + 1.0 (330-Wind Ice)	...	Y		1	1.2	18	1	51	1	34	1	67	1										
50	1.2D + 1.5LV-1	...	Y		1	1.2	68	1.5																
51	1.2D + 1.5LV-2	...	Y		1	1.2	69	1.5																
52	1.2D + 1.5LV-3	...	Y		1	1.2	70	1.5																
53	1.2D + 1.5LV-4	...	Y		1	1.2	71	1.5																
54	1.2D + 1.5LV-5	...	Y		1	1.2	72	1.5																
55	1.2D + 1.5LV-6	...	Y		1	1.2	73	1.5																
56	1.2D + 1.5LV-7	...	Y		1	1.2	74	1.5																
57	1.2D + 1.5LV-8	...	Y		1	1.2	75	1.5																
58	1.2D + 1.5LV-9	...	Y		1	1.2	76	1.5																
59	1.2D + 1.5LV-10	...	Y		1	1.2	77	1.5																
60	1.2D + 1.5LV-11	...	Y		1	1.2	78	1.5																
61	1.2D + 1.5LV-12	...	Y		1	1.2	79	1.5																
62	1.2D + 1.5LV-13	...	Y		1	1.2	80	1.5																
63	1.2D + 1.5LV-14	...	Y		1	1.2	81	1.5																
64	1.2D + 1.5LV-15	...	Y		1	1.2	82	1.5																
65	1.2D + 1.5LM-1 + Maintenance (0-Wind)	...	Y		1	1.2	83	1.5	2	.104	35	.1...												
66	1.2D + 1.5LM-1 + Maintenance (30-Wind)	...	Y		1	1.2	83	1.5	3	.104	36	.1...												
67	1.2D + 1.5LM-1 + Maintenance (45-Wind)	...	Y		1	1.2	83	1.5	4	.104	37	.1...												
68	1.2D + 1.5LM-1 + Maintenance (60-Wind)	...	Y		1	1.2	83	1.5	5	.104	38	.1...												

Load Combinations (Continued)

	Description	...	PD...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	F...	B...	F...	...	F...	...	F...	...	F...	...	F...	...	F...
69	1.2D + 1.5LM-1 + Maintenance (90-Wind)	...	Y		1	1.2	83	1.5	6	.104	39	.1...												
70	1.2D + 1.5LM-1 + Maintenance (120-Wind)	...	Y		1	1.2	83	1.5	7	.104	40	.1...												
71	1.2D + 1.5LM-1 + Maintenance (135-Wind)	...	Y		1	1.2	83	1.5	8	.104	41	.1...												
72	1.2D + 1.5LM-1 + Maintenance (150-Wind)	...	Y		1	1.2	83	1.5	9	.104	42	.1...												
73	1.2D + 1.5LM-1 + Maintenance (180-Wind)	...	Y		1	1.2	83	1.5	10	.104	43	.1...												
74	1.2D + 1.5LM-1 + Maintenance (210-Wind)	...	Y		1	1.2	83	1.5	11	.104	44	.1...												
75	1.2D + 1.5LM-1 + Maintenance (225-Wind)	...	Y		1	1.2	83	1.5	12	.104	45	.1...												
76	1.2D + 1.5LM-1 + Maintenance (240-Wind)	...	Y		1	1.2	83	1.5	13	.104	46	.1...												
77	1.2D + 1.5LM-1 + Maintenance (270-Wind)	...	Y		1	1.2	83	1.5	14	.104	47	.1...												
78	1.2D + 1.5LM-1 + Maintenance (300-Wind)	...	Y		1	1.2	83	1.5	15	.104	48	.1...												
79	1.2D + 1.5LM-1 + Maintenance (315-Wind)	...	Y		1	1.2	83	1.5	16	.104	49	.1...												
80	1.2D + 1.5LM-1 + Maintenance (330-Wind)	...	Y		1	1.2	83	1.5	17	.104	50	.1...												
81	1.2D + 1.5LM-2 + Maintenance (0-Wind)	...	Y		1	1.2	84	1.5	2	.104	35	.1...												
82	1.2D + 1.5LM-2 + Maintenance (30-Wind)	...	Y		1	1.2	84	1.5	3	.104	36	.1...												
83	1.2D + 1.5LM-2 + Maintenance (45-Wind)	...	Y		1	1.2	84	1.5	4	.104	37	.1...												
84	1.2D + 1.5LM-2 + Maintenance (60-Wind)	...	Y		1	1.2	84	1.5	5	.104	38	.1...												
85	1.2D + 1.5LM-2 + Maintenance (90-Wind)	...	Y		1	1.2	84	1.5	6	.104	39	.1...												
86	1.2D + 1.5LM-2 + Maintenance (120-Wind)	...	Y		1	1.2	84	1.5	7	.104	40	.1...												
87	1.2D + 1.5LM-2 + Maintenance (135-Wind)	...	Y		1	1.2	84	1.5	8	.104	41	.1...												
88	1.2D + 1.5LM-2 + Maintenance (150-Wind)	...	Y		1	1.2	84	1.5	9	.104	42	.1...												
89	1.2D + 1.5LM-2 + Maintenance (180-Wind)	...	Y		1	1.2	84	1.5	10	.104	43	.1...												
90	1.2D + 1.5LM-2 + Maintenance (210-Wind)	...	Y		1	1.2	84	1.5	11	.104	44	.1...												
91	1.2D + 1.5LM-2 + Maintenance (225-Wind)	...	Y		1	1.2	84	1.5	12	.104	45	.1...												
92	1.2D + 1.5LM-2 + Maintenance (240-Wind)	...	Y		1	1.2	84	1.5	13	.104	46	.1...												
93	1.2D + 1.5LM-2 + Maintenance (270-Wind)	...	Y		1	1.2	84	1.5	14	.104	47	.1...												
94	1.2D + 1.5LM-2 + Maintenance (300-Wind)	...	Y		1	1.2	84	1.5	15	.104	48	.1...												
95	1.2D + 1.5LM-2 + Maintenance (315-Wind)	...	Y		1	1.2	84	1.5	16	.104	49	.1...												
96	1.2D + 1.5LM-2 + Maintenance (330-Wind)	...	Y		1	1.2	84	1.5	17	.104	50	.1...												
97	1.2D + 1.5LM-3 + Maintenance (0-Wind)	...	Y		1	1.2	85	1.5	2	.104	35	.1...												
98	1.2D + 1.5LM-3 + Maintenance (30-Wind)	...	Y		1	1.2	85	1.5	3	.104	36	.1...												
99	1.2D + 1.5LM-3 + Maintenance (45-Wind)	...	Y		1	1.2	85	1.5	4	.104	37	.1...												
100	1.2D + 1.5LM-3 + Maintenance (60-Wind)	...	Y		1	1.2	85	1.5	5	.104	38	.1...												
101	1.2D + 1.5LM-3 + Maintenance (90-Wind)	...	Y		1	1.2	85	1.5	6	.104	39	.1...												
102	1.2D + 1.5LM-3 + Maintenance (120-Wind)	...	Y		1	1.2	85	1.5	7	.104	40	.1...												
103	1.2D + 1.5LM-3 + Maintenance (135-Wind)	...	Y		1	1.2	85	1.5	8	.104	41	.1...												
104	1.2D + 1.5LM-3 + Maintenance (150-Wind)	...	Y		1	1.2	85	1.5	9	.104	42	.1...												
105	1.2D + 1.5LM-3 + Maintenance (180-Wind)	...	Y		1	1.2	85	1.5	10	.104	43	.1...												
106	1.2D + 1.5LM-3 + Maintenance (210-Wind)	...	Y		1	1.2	85	1.5	11	.104	44	.1...												
107	1.2D + 1.5LM-3 + Maintenance (225-Wind)	...	Y		1	1.2	85	1.5	12	.104	45	.1...												
108	1.2D + 1.5LM-3 + Maintenance (240-Wind)	...	Y		1	1.2	85	1.5	13	.104	46	.1...												
109	1.2D + 1.5LM-3 + Maintenance (270-Wind)	...	Y		1	1.2	85	1.5	14	.104	47	.1...												
110	1.2D + 1.5LM-3 + Maintenance (300-Wind)	...	Y		1	1.2	85	1.5	15	.104	48	.1...												
111	1.2D + 1.5LM-3 + Maintenance (315-Wind)	...	Y		1	1.2	85	1.5	16	.104	49	.1...												
112	1.2D + 1.5LM-3 + Maintenance (330-Wind)	...	Y		1	1.2	85	1.5	17	.104	50	.1...												
113	1.2D + 1.5LM-4 + Maintenance (0-Wind)	...	Y		1	1.2	86	1.5	2	.104	35	.1...												
114	1.2D + 1.5LM-4 + Maintenance (30-Wind)	...	Y		1	1.2	86	1.5	3	.104	36	.1...												
115	1.2D + 1.5LM-4 + Maintenance (45-Wind)	...	Y		1	1.2	86	1.5	4	.104	37	.1...												
116	1.2D + 1.5LM-4 + Maintenance (60-Wind)	...	Y		1	1.2	86	1.5	5	.104	38	.1...												
117	1.2D + 1.5LM-4 + Maintenance (90-Wind)	...	Y		1	1.2	86	1.5	6	.104	39	.1...												
118	1.2D + 1.5LM-4 + Maintenance (120-Wind)	...	Y		1	1.2	86	1.5	7	.104	40	.1...												
119	1.2D + 1.5LM-4 + Maintenance (135-Wind)	...	Y		1	1.2	86	1.5	8	.104	41	.1...												
120	1.2D + 1.5LM-4 + Maintenance (150-Wind)	...	Y		1	1.2	86	1.5	9	.104	42	.1...												
121	1.2D + 1.5LM-4 + Maintenance (180-Wind)	...	Y		1	1.2	86	1.5	10	.104	43	.1...												
122	1.2D + 1.5LM-4 + Maintenance (210-Wind)	...	Y		1	1.2	86	1.5	11	.104	44	.1...												
123	1.2D + 1.5LM-4 + Maintenance (225-Wind)	...	Y		1	1.2	86	1.5	12	.104	45	.1...												
124	1.2D + 1.5LM-4 + Maintenance (240-Wind)	...	Y		1	1.2	86	1.5	13	.104	46	.1...												
125	1.2D + 1.5LM-4 + Maintenance (270-Wind)	...	Y		1	1.2	86	1.5	14	.104	47	.1...												

Load Combinations (Continued)

	Description	...	PD...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	F...	B...	F...	...	F...	...	F...	...	F...	...	F...	...	F...
126	1.2D + 1.5LM-4 + Maintenance (300-Wind)	...	Y		1	1.2	86	1.5	15	.104	48	.1...												
127	1.2D + 1.5LM-4 + Maintenance (315-Wind)	...	Y		1	1.2	86	1.5	16	.104	49	.1...												
128	1.2D + 1.5LM-4 + Maintenance (330-Wind)	...	Y		1	1.2	86	1.5	17	.104	50	.1...												
129	1.2D + 1.5LM-5 + Maintenance (0-Wind)	...	Y		1	1.2	87	1.5	2	.104	35	.1...												
130	1.2D + 1.5LM-5 + Maintenance (30-Wind)	...	Y		1	1.2	87	1.5	3	.104	36	.1...												
131	1.2D + 1.5LM-5 + Maintenance (45-Wind)	...	Y		1	1.2	87	1.5	4	.104	37	.1...												
132	1.2D + 1.5LM-5 + Maintenance (60-Wind)	...	Y		1	1.2	87	1.5	5	.104	38	.1...												
133	1.2D + 1.5LM-5 + Maintenance (90-Wind)	...	Y		1	1.2	87	1.5	6	.104	39	.1...												
134	1.2D + 1.5LM-5 + Maintenance (120-Wind)	...	Y		1	1.2	87	1.5	7	.104	40	.1...												
135	1.2D + 1.5LM-5 + Maintenance (135-Wind)	...	Y		1	1.2	87	1.5	8	.104	41	.1...												
136	1.2D + 1.5LM-5 + Maintenance (150-Wind)	...	Y		1	1.2	87	1.5	9	.104	42	.1...												
137	1.2D + 1.5LM-5 + Maintenance (180-Wind)	...	Y		1	1.2	87	1.5	10	.104	43	.1...												
138	1.2D + 1.5LM-5 + Maintenance (210-Wind)	...	Y		1	1.2	87	1.5	11	.104	44	.1...												
139	1.2D + 1.5LM-5 + Maintenance (225-Wind)	...	Y		1	1.2	87	1.5	12	.104	45	.1...												
140	1.2D + 1.5LM-5 + Maintenance (240-Wind)	...	Y		1	1.2	87	1.5	13	.104	46	.1...												
141	1.2D + 1.5LM-5 + Maintenance (270-Wind)	...	Y		1	1.2	87	1.5	14	.104	47	.1...												
142	1.2D + 1.5LM-5 + Maintenance (300-Wind)	...	Y		1	1.2	87	1.5	15	.104	48	.1...												
143	1.2D + 1.5LM-5 + Maintenance (315-Wind)	...	Y		1	1.2	87	1.5	16	.104	49	.1...												
144	1.2D + 1.5LM-5 + Maintenance (330-Wind)	...	Y		1	1.2	87	1.5	17	.104	50	.1...												
145	1.2D + 1.5LM-6 + Maintenance (0-Wind)	...	Y		1	1.2	88	1.5	2	.104	35	.1...												
146	1.2D + 1.5LM-6 + Maintenance (30-Wind)	...	Y		1	1.2	88	1.5	3	.104	36	.1...												
147	1.2D + 1.5LM-6 + Maintenance (45-Wind)	...	Y		1	1.2	88	1.5	4	.104	37	.1...												
148	1.2D + 1.5LM-6 + Maintenance (60-Wind)	...	Y		1	1.2	88	1.5	5	.104	38	.1...												
149	1.2D + 1.5LM-6 + Maintenance (90-Wind)	...	Y		1	1.2	88	1.5	6	.104	39	.1...												
150	1.2D + 1.5LM-6 + Maintenance (120-Wind)	...	Y		1	1.2	88	1.5	7	.104	40	.1...												
151	1.2D + 1.5LM-6 + Maintenance (135-Wind)	...	Y		1	1.2	88	1.5	8	.104	41	.1...												
152	1.2D + 1.5LM-6 + Maintenance (150-Wind)	...	Y		1	1.2	88	1.5	9	.104	42	.1...												
153	1.2D + 1.5LM-6 + Maintenance (180-Wind)	...	Y		1	1.2	88	1.5	10	.104	43	.1...												
154	1.2D + 1.5LM-6 + Maintenance (210-Wind)	...	Y		1	1.2	88	1.5	11	.104	44	.1...												
155	1.2D + 1.5LM-6 + Maintenance (225-Wind)	...	Y		1	1.2	88	1.5	12	.104	45	.1...												
156	1.2D + 1.5LM-6 + Maintenance (240-Wind)	...	Y		1	1.2	88	1.5	13	.104	46	.1...												
157	1.2D + 1.5LM-6 + Maintenance (270-Wind)	...	Y		1	1.2	88	1.5	14	.104	47	.1...												
158	1.2D + 1.5LM-6 + Maintenance (300-Wind)	...	Y		1	1.2	88	1.5	15	.104	48	.1...												
159	1.2D + 1.5LM-6 + Maintenance (315-Wind)	...	Y		1	1.2	88	1.5	16	.104	49	.1...												
160	1.2D + 1.5LM-6 + Maintenance (330-Wind)	...	Y		1	1.2	88	1.5	17	.104	50	.1...												
161	1.2D + 1.5LM-7 + Maintenance (0-Wind)	...	Y		1	1.2	89	1.5	2	.104	35	.1...												
162	1.2D + 1.5LM-7 + Maintenance (30-Wind)	...	Y		1	1.2	89	1.5	3	.104	36	.1...												
163	1.2D + 1.5LM-7 + Maintenance (45-Wind)	...	Y		1	1.2	89	1.5	4	.104	37	.1...												
164	1.2D + 1.5LM-7 + Maintenance (60-Wind)	...	Y		1	1.2	89	1.5	5	.104	38	.1...												
165	1.2D + 1.5LM-7 + Maintenance (90-Wind)	...	Y		1	1.2	89	1.5	6	.104	39	.1...												
166	1.2D + 1.5LM-7 + Maintenance (120-Wind)	...	Y		1	1.2	89	1.5	7	.104	40	.1...												
167	1.2D + 1.5LM-7 + Maintenance (135-Wind)	...	Y		1	1.2	89	1.5	8	.104	41	.1...												
168	1.2D + 1.5LM-7 + Maintenance (150-Wind)	...	Y		1	1.2	89	1.5	9	.104	42	.1...												
169	1.2D + 1.5LM-7 + Maintenance (180-Wind)	...	Y		1	1.2	89	1.5	10	.104	43	.1...												
170	1.2D + 1.5LM-7 + Maintenance (210-Wind)	...	Y		1	1.2	89	1.5	11	.104	44	.1...												
171	1.2D + 1.5LM-7 + Maintenance (225-Wind)	...	Y		1	1.2	89	1.5	12	.104	45	.1...												
172	1.2D + 1.5LM-7 + Maintenance (240-Wind)	...	Y		1	1.2	89	1.5	13	.104	46	.1...												
173	1.2D + 1.5LM-7 + Maintenance (270-Wind)	...	Y		1	1.2	89	1.5	14	.104	47	.1...												
174	1.2D + 1.5LM-7 + Maintenance (300-Wind)	...	Y		1	1.2	89	1.5	15	.104	48	.1...												
175	1.2D + 1.5LM-7 + Maintenance (315-Wind)	...	Y		1	1.2	89	1.5	16	.104	49	.1...												
176	1.2D + 1.5LM-7 + Maintenance (330-Wind)	...	Y		1	1.2	89	1.5	17	.104	50	.1...												
177	1.2D + 1.5LM-8 + Maintenance (0-Wind)	...	Y		1	1.2	90	1.5	2	.104	35	.1...												
178	1.2D + 1.5LM-8 + Maintenance (30-Wind)	...	Y		1	1.2	90	1.5	3	.104	36	.1...												
179	1.2D + 1.5LM-8 + Maintenance (45-Wind)	...	Y		1	1.2	90	1.5	4	.104	37	.1...												
180	1.2D + 1.5LM-8 + Maintenance (60-Wind)	...	Y		1	1.2	90	1.5	5	.104	38	.1...												
181	1.2D + 1.5LM-8 + Maintenance (90-Wind)	...	Y		1	1.2	90	1.5	6	.104	39	.1...												
182	1.2D + 1.5LM-8 + Maintenance (120-Wind)	...	Y		1	1.2	90	1.5	7	.104	40	.1...												

Load Combinations (Continued)

	Description	...	PD...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	F...	B...	F...	...	F...	...	F...	...	F...	...	F...	...	F...
183	1.2D + 1.5LM-8 + Maintenance (135-Wind)	...	Y		1	1.2	90	1.5	8	.104	41	.1...												
184	1.2D + 1.5LM-8 + Maintenance (150-Wind)	...	Y		1	1.2	90	1.5	9	.104	42	.1...												
185	1.2D + 1.5LM-8 + Maintenance (180-Wind)	...	Y		1	1.2	90	1.5	10	.104	43	.1...												
186	1.2D + 1.5LM-8 + Maintenance (210-Wind)	...	Y		1	1.2	90	1.5	11	.104	44	.1...												
187	1.2D + 1.5LM-8 + Maintenance (225-Wind)	...	Y		1	1.2	90	1.5	12	.104	45	.1...												
188	1.2D + 1.5LM-8 + Maintenance (240-Wind)	...	Y		1	1.2	90	1.5	13	.104	46	.1...												
189	1.2D + 1.5LM-8 + Maintenance (270-Wind)	...	Y		1	1.2	90	1.5	14	.104	47	.1...												
190	1.2D + 1.5LM-8 + Maintenance (300-Wind)	...	Y		1	1.2	90	1.5	15	.104	48	.1...												
191	1.2D + 1.5LM-8 + Maintenance (315-Wind)	...	Y		1	1.2	90	1.5	16	.104	49	.1...												
192	1.2D + 1.5LM-8 + Maintenance (330-Wind)	...	Y		1	1.2	90	1.5	17	.104	50	.1...												
193	1.2D + 1.5LM-9 + Maintenance (0-Wind)	...	Y		1	1.2	91	1.5	2	.104	35	.1...												
194	1.2D + 1.5LM-9 + Maintenance (30-Wind)	...	Y		1	1.2	91	1.5	3	.104	36	.1...												
195	1.2D + 1.5LM-9 + Maintenance (45-Wind)	...	Y		1	1.2	91	1.5	4	.104	37	.1...												
196	1.2D + 1.5LM-9 + Maintenance (60-Wind)	...	Y		1	1.2	91	1.5	5	.104	38	.1...												
197	1.2D + 1.5LM-9 + Maintenance (90-Wind)	...	Y		1	1.2	91	1.5	6	.104	39	.1...												
198	1.2D + 1.5LM-9 + Maintenance (120-Wind)	...	Y		1	1.2	91	1.5	7	.104	40	.1...												
199	1.2D + 1.5LM-9 + Maintenance (135-Wind)	...	Y		1	1.2	91	1.5	8	.104	41	.1...												
200	1.2D + 1.5LM-9 + Maintenance (150-Wind)	...	Y		1	1.2	91	1.5	9	.104	42	.1...												
201	1.2D + 1.5LM-9 + Maintenance (180-Wind)	...	Y		1	1.2	91	1.5	10	.104	43	.1...												
202	1.2D + 1.5LM-9 + Maintenance (210-Wind)	...	Y		1	1.2	91	1.5	11	.104	44	.1...												
203	1.2D + 1.5LM-9 + Maintenance (225-Wind)	...	Y		1	1.2	91	1.5	12	.104	45	.1...												
204	1.2D + 1.5LM-9 + Maintenance (240-Wind)	...	Y		1	1.2	91	1.5	13	.104	46	.1...												
205	1.2D + 1.5LM-9 + Maintenance (270-Wind)	...	Y		1	1.2	91	1.5	14	.104	47	.1...												
206	1.2D + 1.5LM-9 + Maintenance (300-Wind)	...	Y		1	1.2	91	1.5	15	.104	48	.1...												
207	1.2D + 1.5LM-9 + Maintenance (315-Wind)	...	Y		1	1.2	91	1.5	16	.104	49	.1...												
208	1.2D + 1.5LM-9 + Maintenance (330-Wind)	...	Y		1	1.2	91	1.5	17	.104	50	.1...												
209	1.2D + 1.5LM-10 + Maintenance (0-Wind)	...	Y		1	1.2	92	1.5	2	.104	35	.1...												
210	1.2D + 1.5LM-10 + Maintenance (30-Wind)	...	Y		1	1.2	92	1.5	3	.104	36	.1...												
211	1.2D + 1.5LM-10 + Maintenance (45-Wind)	...	Y		1	1.2	92	1.5	4	.104	37	.1...												
212	1.2D + 1.5LM-10 + Maintenance (60-Wind)	...	Y		1	1.2	92	1.5	5	.104	38	.1...												
213	1.2D + 1.5LM-10 + Maintenance (90-Wind)	...	Y		1	1.2	92	1.5	6	.104	39	.1...												
214	1.2D + 1.5LM-10 + Maintenance (120-Wind)	...	Y		1	1.2	92	1.5	7	.104	40	.1...												
215	1.2D + 1.5LM-10 + Maintenance (135-Wind)	...	Y		1	1.2	92	1.5	8	.104	41	.1...												
216	1.2D + 1.5LM-10 + Maintenance (150-Wind)	...	Y		1	1.2	92	1.5	9	.104	42	.1...												
217	1.2D + 1.5LM-10 + Maintenance (180-Wind)	...	Y		1	1.2	92	1.5	10	.104	43	.1...												
218	1.2D + 1.5LM-10 + Maintenance (210-Wind)	...	Y		1	1.2	92	1.5	11	.104	44	.1...												
219	1.2D + 1.5LM-10 + Maintenance (225-Wind)	...	Y		1	1.2	92	1.5	12	.104	45	.1...												
220	1.2D + 1.5LM-10 + Maintenance (240-Wind)	...	Y		1	1.2	92	1.5	13	.104	46	.1...												
221	1.2D + 1.5LM-10 + Maintenance (270-Wind)	...	Y		1	1.2	92	1.5	14	.104	47	.1...												
222	1.2D + 1.5LM-10 + Maintenance (300-Wind)	...	Y		1	1.2	92	1.5	15	.104	48	.1...												
223	1.2D + 1.5LM-10 + Maintenance (315-Wind)	...	Y		1	1.2	92	1.5	16	.104	49	.1...												
224	1.2D + 1.5LM-10 + Maintenance (330-Wind)	...	Y		1	1.2	92	1.5	17	.104	50	.1...												
225	1.2D + 1.5LM-11 + Maintenance (0-Wind)	...	Y		1	1.2	93	1.5	2	.104	35	.1...												
226	1.2D + 1.5LM-11 + Maintenance (30-Wind)	...	Y		1	1.2	93	1.5	3	.104	36	.1...												
227	1.2D + 1.5LM-11 + Maintenance (45-Wind)	...	Y		1	1.2	93	1.5	4	.104	37	.1...												
228	1.2D + 1.5LM-11 + Maintenance (60-Wind)	...	Y		1	1.2	93	1.5	5	.104	38	.1...												
229	1.2D + 1.5LM-11 + Maintenance (90-Wind)	...	Y		1	1.2	93	1.5	6	.104	39	.1...												
230	1.2D + 1.5LM-11 + Maintenance (120-Wind)	...	Y		1	1.2	93	1.5	7	.104	40	.1...												
231	1.2D + 1.5LM-11 + Maintenance (135-Wind)	...	Y		1	1.2	93	1.5	8	.104	41	.1...												
232	1.2D + 1.5LM-11 + Maintenance (150-Wind)	...	Y		1	1.2	93	1.5	9	.104	42	.1...												
233	1.2D + 1.5LM-11 + Maintenance (180-Wind)	...	Y		1	1.2	93	1.5	10	.104	43	.1...												
234	1.2D + 1.5LM-11 + Maintenance (210-Wind)	...	Y		1	1.2	93	1.5	11	.104	44	.1...												
235	1.2D + 1.5LM-11 + Maintenance (225-Wind)	...	Y		1	1.2	93	1.5	12	.104	45	.1...												
236	1.2D + 1.5LM-11 + Maintenance (240-Wind)	...	Y		1	1.2	93	1.5	13	.104	46	.1...												
237	1.2D + 1.5LM-11 + Maintenance (270-Wind)	...	Y		1	1.2	93	1.5	14	.104	47	.1...												
238	1.2D + 1.5LM-11 + Maintenance (300-Wind)	...	Y		1	1.2	93	1.5	15	.104	48	.1...												
239	1.2D + 1.5LM-11 + Maintenance (315-Wind)	...	Y		1	1.2	93	1.5	16	.104	49	.1...												

Load Combinations (Continued)

	Description	...	PD...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	F...	B...	F...	...	F...	...	F...	...	F...	...	F...	...	F...
240	1.2D + 1.5LM-11 + Maintenance (330-Wind)	...	Y		1	1.2	93	1.5	17	.104	50	.1...												
241	1.2D + 1.5LM-12 + Maintenance (0-Wind)	...	Y		1	1.2	94	1.5	2	.104	35	.1...												
242	1.2D + 1.5LM-12 + Maintenance (30-Wind)	...	Y		1	1.2	94	1.5	3	.104	36	.1...												
243	1.2D + 1.5LM-12 + Maintenance (45-Wind)	...	Y		1	1.2	94	1.5	4	.104	37	.1...												
244	1.2D + 1.5LM-12 + Maintenance (60-Wind)	...	Y		1	1.2	94	1.5	5	.104	38	.1...												
245	1.2D + 1.5LM-12 + Maintenance (90-Wind)	...	Y		1	1.2	94	1.5	6	.104	39	.1...												
246	1.2D + 1.5LM-12 + Maintenance (120-Wind)	...	Y		1	1.2	94	1.5	7	.104	40	.1...												
247	1.2D + 1.5LM-12 + Maintenance (135-Wind)	...	Y		1	1.2	94	1.5	8	.104	41	.1...												
248	1.2D + 1.5LM-12 + Maintenance (150-Wind)	...	Y		1	1.2	94	1.5	9	.104	42	.1...												
249	1.2D + 1.5LM-12 + Maintenance (180-Wind)	...	Y		1	1.2	94	1.5	10	.104	43	.1...												
250	1.2D + 1.5LM-12 + Maintenance (210-Wind)	...	Y		1	1.2	94	1.5	11	.104	44	.1...												
251	1.2D + 1.5LM-12 + Maintenance (225-Wind)	...	Y		1	1.2	94	1.5	12	.104	45	.1...												
252	1.2D + 1.5LM-12 + Maintenance (240-Wind)	...	Y		1	1.2	94	1.5	13	.104	46	.1...												
253	1.2D + 1.5LM-12 + Maintenance (270-Wind)	...	Y		1	1.2	94	1.5	14	.104	47	.1...												
254	1.2D + 1.5LM-12 + Maintenance (300-Wind)	...	Y		1	1.2	94	1.5	15	.104	48	.1...												
255	1.2D + 1.5LM-12 + Maintenance (315-Wind)	...	Y		1	1.2	94	1.5	16	.104	49	.1...												
256	1.2D + 1.5LM-12 + Maintenance (330-Wind)	...	Y		1	1.2	94	1.5	17	.104	50	.1...												
257	1.2D + 1.5LM-13 + Maintenance (0-Wind)	...	Y		1	1.2	95	1.5	2	.104	35	.1...												
258	1.2D + 1.5LM-13 + Maintenance (30-Wind)	...	Y		1	1.2	95	1.5	3	.104	36	.1...												
259	1.2D + 1.5LM-13 + Maintenance (45-Wind)	...	Y		1	1.2	95	1.5	4	.104	37	.1...												
260	1.2D + 1.5LM-13 + Maintenance (60-Wind)	...	Y		1	1.2	95	1.5	5	.104	38	.1...												
261	1.2D + 1.5LM-13 + Maintenance (90-Wind)	...	Y		1	1.2	95	1.5	6	.104	39	.1...												
262	1.2D + 1.5LM-13 + Maintenance (120-Wind)	...	Y		1	1.2	95	1.5	7	.104	40	.1...												
263	1.2D + 1.5LM-13 + Maintenance (135-Wind)	...	Y		1	1.2	95	1.5	8	.104	41	.1...												
264	1.2D + 1.5LM-13 + Maintenance (150-Wind)	...	Y		1	1.2	95	1.5	9	.104	42	.1...												
265	1.2D + 1.5LM-13 + Maintenance (180-Wind)	...	Y		1	1.2	95	1.5	10	.104	43	.1...												
266	1.2D + 1.5LM-13 + Maintenance (210-Wind)	...	Y		1	1.2	95	1.5	11	.104	44	.1...												
267	1.2D + 1.5LM-13 + Maintenance (225-Wind)	...	Y		1	1.2	95	1.5	12	.104	45	.1...												
268	1.2D + 1.5LM-13 + Maintenance (240-Wind)	...	Y		1	1.2	95	1.5	13	.104	46	.1...												
269	1.2D + 1.5LM-13 + Maintenance (270-Wind)	...	Y		1	1.2	95	1.5	14	.104	47	.1...												
270	1.2D + 1.5LM-13 + Maintenance (300-Wind)	...	Y		1	1.2	95	1.5	15	.104	48	.1...												
271	1.2D + 1.5LM-13 + Maintenance (315-Wind)	...	Y		1	1.2	95	1.5	16	.104	49	.1...												
272	1.2D + 1.5LM-13 + Maintenance (330-Wind)	...	Y		1	1.2	95	1.5	17	.104	50	.1...												
273	1.2D + 1.5LM-14 + Maintenance (0-Wind)	...	Y		1	1.2	96	1.5	2	.104	35	.1...												
274	1.2D + 1.5LM-14 + Maintenance (30-Wind)	...	Y		1	1.2	96	1.5	3	.104	36	.1...												
275	1.2D + 1.5LM-14 + Maintenance (45-Wind)	...	Y		1	1.2	96	1.5	4	.104	37	.1...												
276	1.2D + 1.5LM-14 + Maintenance (60-Wind)	...	Y		1	1.2	96	1.5	5	.104	38	.1...												
277	1.2D + 1.5LM-14 + Maintenance (90-Wind)	...	Y		1	1.2	96	1.5	6	.104	39	.1...												
278	1.2D + 1.5LM-14 + Maintenance (120-Wind)	...	Y		1	1.2	96	1.5	7	.104	40	.1...												
279	1.2D + 1.5LM-14 + Maintenance (135-Wind)	...	Y		1	1.2	96	1.5	8	.104	41	.1...												
280	1.2D + 1.5LM-14 + Maintenance (150-Wind)	...	Y		1	1.2	96	1.5	9	.104	42	.1...												
281	1.2D + 1.5LM-14 + Maintenance (180-Wind)	...	Y		1	1.2	96	1.5	10	.104	43	.1...												
282	1.2D + 1.5LM-14 + Maintenance (210-Wind)	...	Y		1	1.2	96	1.5	11	.104	44	.1...												
283	1.2D + 1.5LM-14 + Maintenance (225-Wind)	...	Y		1	1.2	96	1.5	12	.104	45	.1...												
284	1.2D + 1.5LM-14 + Maintenance (240-Wind)	...	Y		1	1.2	96	1.5	13	.104	46	.1...												
285	1.2D + 1.5LM-14 + Maintenance (270-Wind)	...	Y		1	1.2	96	1.5	14	.104	47	.1...												
286	1.2D + 1.5LM-14 + Maintenance (300-Wind)	...	Y		1	1.2	96	1.5	15	.104	48	.1...												
287	1.2D + 1.5LM-14 + Maintenance (315-Wind)	...	Y		1	1.2	96	1.5	16	.104	49	.1...												
288	1.2D + 1.5LM-14 + Maintenance (330-Wind)	...	Y		1	1.2	96	1.5	17	.104	50	.1...												
289	1.2D + 1.5LM-15 + Maintenance (0-Wind)	...	Y		1	1.2	97	1.5	2	.104	35	.1...												
290	1.2D + 1.5LM-15 + Maintenance (30-Wind)	...	Y		1	1.2	97	1.5	3	.104	36	.1...												
291	1.2D + 1.5LM-15 + Maintenance (45-Wind)	...	Y		1	1.2	97	1.5	4	.104	37	.1...												
292	1.2D + 1.5LM-15 + Maintenance (60-Wind)	...	Y		1	1.2	97	1.5	5	.104	38	.1...												
293	1.2D + 1.5LM-15 + Maintenance (90-Wind)	...	Y		1	1.2	97	1.5	6	.104	39	.1...												
294	1.2D + 1.5LM-15 + Maintenance (120-Wind)	...	Y		1	1.2	97	1.5	7	.104	40	.1...												
295	1.2D + 1.5LM-15 + Maintenance (135-Wind)	...	Y		1	1.2	97	1.5	8	.104	41	.1...												
296	1.2D + 1.5LM-15 + Maintenance (150-Wind)	...	Y		1	1.2	97	1.5	9	.104	42	.1...												

Load Combinations (Continued)

	Description	...	PD...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	F...	B...	F...	...	F...	...	F...	...	F...	...	F...	...	F...
297	1.2D + 1.5LM-15 + Maintenance (180-Wind)	...	Y		1	1.2	97	1.5	10	.104	43	.1...												
298	1.2D + 1.5LM-15 + Maintenance (210-Wind)	...	Y		1	1.2	97	1.5	11	.104	44	.1...												
299	1.2D + 1.5LM-15 + Maintenance (225-Wind)	...	Y		1	1.2	97	1.5	12	.104	45	.1...												
300	1.2D + 1.5LM-15 + Maintenance (240-Wind)	...	Y		1	1.2	97	1.5	13	.104	46	.1...												
301	1.2D + 1.5LM-15 + Maintenance (270-Wind)	...	Y		1	1.2	97	1.5	14	.104	47	.1...												
302	1.2D + 1.5LM-15 + Maintenance (300-Wind)	...	Y		1	1.2	97	1.5	15	.104	48	.1...												
303	1.2D + 1.5LM-15 + Maintenance (315-Wind)	...	Y		1	1.2	97	1.5	16	.104	49	.1...												
304	1.2D + 1.5LM-15 + Maintenance (330-Wind)	...	Y		1	1.2	97	1.5	17	.104	50	.1...												

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N14	max	1140.231	76	1281.725	41	1552.776	17	0	1	0	1	0	1
2		min	-1628.515	116	296.829	2	-2559.908	25	0	1	0	1	0	1
3	N33	max	1612.498	124	1230.08	34	2230.435	34	0	1	0	1	0	1
4		min	-1124.801	68	292.713	11	-790.447	10	0	1	0	1	0	1
5	N47A	max	21.813	14	38.631	45	1362.235	21	3.037	124	0	1	173.994	124
6		min	-17.79	6	6.575	4	-1358.477	29	-.302	68	0	1	-17.295	68
7	N48	max	0	1	0	1	0	1	0	1	0	1	0	1
8		min	0	1	0	1	0	1	0	1	0	1	0	1
9	Totals:	max	1719.873	13	2531.245	35	2799.799	18						
10		min	-1719.873	5	617.992	14	-2799.799	26						

Envelope AISC 13th(360-05): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [l...	phi*Pnt [lb]	phi*Mn y-...	phi*Mn z-...	Cb	Eqn
1	TH	PIPE_2.5	.407	3.906	25	.142	3.776		32	14558.792	50715	3596.25	3596.25	1...	H1-1b
2	BH	PIPE_2.5	.268	3.776	128	.108	3.906		33	14558.792	50715	3596.25	3596.25	2...	H1-1b
3	PL5	PL5/8"x7.5"	.281	0	39	.027	0	y	116	145857.0...	151875	1977.539	23730.469	1...	H1-1b
4	PL6	PL5/8"x7.5"	.285	0	48	.027	0	y	126	145857.0...	151875	1977.539	23730.469	1...	H1-1b
5	PL2	PL5/8"x3.5"	.350	0	66	.408	0	y	40	64718.403	70875	922.852	5167.97	1...	H1-1b
6	PL1	PL5/8"x3.5"	.441	.625	127	.476	0	y	43	64718.403	70875	922.852	5167.97	1...	H1-1b
7	PL4	PL5/8"x3.5"	.354	0	70	.414	0	y	36	64718.403	70875	922.852	5167.97	1...	H1-1b
8	PL3	PL5/8"x3.5"	.445	.625	124	.491	0	y	48	64718.403	70875	922.852	5167.97	1...	H1-1b
9	SA4	PIPE_2.0	.310	2.336	68	.103	.242		67	29670.214	32130	1871.625	1871.625	2...	H1-1b
10	SA1	PIPE_2.0	.367	2.336	123	.132	.242		124	29670.214	32130	1871.625	1871.625	2...	H1-1b
11	SA3	PIPE_2.0	.372	2.336	126	.132	.242		127	29670.214	32130	1871.625	1871.625	2...	H1-1b
12	M2	PL5/8"x3.5"	.293	.417	72	.265	0	y	78	68062.221	70875	922.852	5167.97	1...	H1-1b
13	M4	PL5/8"x3.5"	.295	.417	67	.267	0	y	67	68062.221	70875	922.852	5167.97	1...	H1-1b
14	M1	PL5/8"x3.5"	.353	.417	120	.296	0	y	37	68062.221	70875	922.852	5167.97	1...	H1-1b
15	M3	PL5/8"x3.5"	.353	.417	128	.290	0	y	45	68062.221	70875	922.852	5167.97	1...	H1-1b
16	V4	5/8" SR	.181	0	40	.028	3.333		126	2503.582	9940.19	103.542	103.542	2...	H1-1b
17	V3	5/8" SR	.206	3.333	49	.018	3.333		29	2503.582	9940.19	103.542	103.542	2...	H1-1b
18	V1	5/8" SR	.183	0	44	.030	0		123	2503.582	9940.19	103.542	103.542	2...	H1-1b
19	V2	5/8" SR	.162	3.333	35	.021	3.333		21	2503.582	9940.19	103.542	103.542	2...	H1-1b
20	D3	3/4" SR	.423	0	40	.023	3.927		128	3739.506	14313.866	178.929	178.929	2...	H1-1a
21	D4	3/4" SR	.202	3.927	49	.024	3.927		29	3739.506	14313.866	178.929	178.929	2...	H1-1b
22	D1	3/4" SR	.190	3.927	35	.028	3.927		31	3739.506	14313.866	178.929	178.929	2...	H1-1b
23	D2	3/4" SR	.512	0	44	.021	0		121	3739.506	14313.866	178.929	178.929	2...	H1-1a
24	MP4	PIPE_2.0	.351	2.333	79	.040	5.583		74	14916.096	32130	1871.625	1871.625	3	H1-1b
25	MP3	PIPE_2.0	.409	5.667	26	.073	2.333		27	14916.096	32130	1871.625	1871.625	3	H1-1b
26	MP2	PIPE_2.0	.161	5.583	25	.110	5.583		31	14916.096	32130	1871.625	1871.625	3	H1-1b
27	MP1	PIPE_2.0	.384	2.333	114	.070	2.333		33	14916.096	32130	1871.625	1871.625	3	H1-1b
28	SA2	PIPE_2.0	.307	2.336	68	.103	.242		70	29670.214	32130	1871.625	1871.625	2...	H1-1b
29	K1	PIPE_2.0	.056	4.75	21	.105	0		124	24514.617	32130	1871.625	1871.625	1...	H1-1b*

RAMAKER & ASSOCIATES, INC.
100% EMPLOYEE-OWNED

Job	CT72XC033
Project	28758
By	KLP
Date	7/24/18

Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V :	93	mph	Basic Wind Speed (Annex B)
z :	257	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	1.54		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.41		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	45.9	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections

Mount & Antenna Wind Loads

Appurtenance	Height	Width	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
NNVV-65B-R4	72.0	19.6	3.7	Flat	1.252	9.80	562.9	
AAHC	25.6	19.7	1.3	Flat	1.200	3.51	193.2	
1900MHz 4x45W RRH	25.1	11.1	2.3	Flat	1.200	1.93	106.5	
800MHz 2x50W RRH	19.0	13.0	1.5	Flat	1.200	1.72	94.4	
Pipe2-1/2STD x 14 ft	168.0	2.9	58.4	Round	1.167	3.35	179.6	12.8
Pipe2STD x 7.75 ft	93.0	2.4	39.2	Round	1.200	1.53	84.4	10.9
Pipe2STD x 6 ft	72.0	2.4	30.3	Round	1.200	1.19	65.4	10.9
Pipe2STD x 3.25 ft	39.0	2.4	16.4	Round	1.009	0.64	29.8	9.2
Pipe1STD x 4 ft	48.0	1.3	36.5	Round	1.200	0.44	24.1	6.0
Pipe1STD x 3.25 ft	39.0	1.3	29.7	Round	1.200	0.36	19.6	6.0
Pipe4STD x 5 ft	60.0	4.5	13.3	Round	0.688	1.88	59.2	11.8

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Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V :	93	mph	Basic Wind Speed (Annex B)
z :	257	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	1.54		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.41		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	45.9	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections

Mount & Antenna Wind Loads

Appurtenance	Height	Depth	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
NNVV-65B-R4	72.0	7.8	9.2	Flat	1.474	3.90	263.7	
AAHC	25.6	9.7	2.7	Flat	1.207	1.72	95.1	
1900MHz 4x45W RRH	25.1	10.7	2.3	Flat	1.200	1.86	102.6	
800MHz 2x50W RRH	19.0	12.2	1.6	Flat	1.200	1.61	88.6	
Pipe2-1/2STD x 14 ft	168.0	2.9	58.4	Round	1.167	3.35	179.6	12.8
Pipe2STD x 7.75 ft	93.0	2.4	39.2	Round	1.200	1.53	84.4	10.9
Pipe2STD x 6 ft	72.0	2.4	30.3	Round	1.200	1.19	65.4	10.9
Pipe2STD x 3.25 ft	39.0	2.4	16.4	Round	1.009	0.64	29.8	9.2
Pipe1STD x 4 ft	48.0	1.3	36.5	Round	1.200	0.44	24.1	6.0
Pipe1STD x 3.25 ft	39.0	1.3	29.7	Round	1.200	0.36	19.6	6.0
Pipe4STD x 5 ft	60.0	4.5	13.3	Round	0.688	1.88	59.2	11.8

RAMAKER & ASSOCIATES, INC.
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Job	CT72XC033
Project	28758
By	KLP
Date	7/24/18

Ice Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V_i :	50	mph	Basic Wind Speed (Annex B)
z :	257	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	1.54		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.41		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	13.26	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections
t_{iz} :	2.08	in	Design Thickness of Radial Ice at Height z (2.6.8)

Mount & Antenna Ice Wind Loads

Appurtenance	Height	Width	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
NNVV-65B-R4	76.2	23.8	3.2	Flat	1.231	12.56	205.1	
AAHC	29.8	23.9	1.2	Flat	1.200	4.94	78.6	
1900MHz 4x45W RRH	29.3	15.3	1.9	Flat	1.200	3.10	49.3	
800MHz 2x50W RRH	23.2	17.2	1.3	Flat	1.200	2.76	43.9	
Pipe2-1/2STD x 14 ft	172.2	7.0	24.5	Round	1.189	8.41	132.5	9.2
Pipe2STD x 7.75 ft	97.2	6.5	14.9	Round	0.975	4.41	57.0	7.0
Pipe2STD x 6 ft	76.2	6.5	11.7	Round	0.904	3.45	41.4	6.5
Pipe2STD x 3.25 ft	43.2	6.5	6.6	Round	0.791	1.96	20.5	5.7
Pipe1STD x 4 ft	52.2	5.5	9.5	Round	0.856	1.98	22.5	5.2
Pipe1STD x 3.25 ft	43.2	5.5	7.9	Round	0.820	1.64	17.8	5.0
Pipe4STD x 5 ft	64.2	8.7	7.4	Round	0.809	3.86	41.4	7.7

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Ice Wind Load on Antennas TIA-222-G

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2\ I$

$F = q_z\ G_h\ C_a\ A_a$

Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V_i :	50	mph	Basic Wind Speed (Annex B)
z :	257	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_z :	1.54		Velocity Pressure Coefficient (2.6.5.2)
K_{zt} :	1.41		Topographic Factor (2.6.6.4)
K_d :	0.95		Wind Direction Probability Factor (Table 2-2)
q_z :	13.26	psf	Velocity Pressure at Height z
G_h :	1.00		Strength Design of Appurtenances and their Connections
t_{iz} :	2.08	in	Design Thickness of Radial Ice at Height z (2.6.8)

Mount & Antenna Ice Wind Loads

Appurtenance	Height	Depth	h/D	Shape	C_a	A_a	Force	Force
	in	*in*				*sq ft*	*lb*	*plf*
NNVV-65B-R4	76.2	12.0	6.4	Flat	1.372	6.32	115.0	
AAHC	29.8	13.8	2.2	Flat	1.200	2.86	45.4	
1900MHz 4x45W RRH	29.3	14.8	2.0	Flat	1.200	3.02	48.0	
800MHz 2x50W RRH	23.2	16.4	1.4	Flat	1.200	2.63	41.8	
Pipe2-1/2STD x 14 ft	172.2	7.0	24.5	Round	1.189	8.41	132.5	9.2
Pipe2STD x 7.75 ft	97.2	6.5	14.9	Round	0.975	4.41	57.0	7.0
Pipe2STD x 6 ft	76.2	6.5	11.7	Round	0.904	3.45	41.4	6.5
Pipe2STD x 3.25 ft	43.2	6.5	6.6	Round	0.791	1.96	20.5	5.7
Pipe1STD x 4 ft	52.2	5.5	9.5	Round	0.856	1.98	22.5	5.2
Pipe1STD x 3.25 ft	43.2	5.5	7.9	Round	0.820	1.64	17.8	5.0
Pipe4STD x 5 ft	64.2	8.7	7.4	Round	0.809	3.86	41.4	7.7

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Job	CT72XC033
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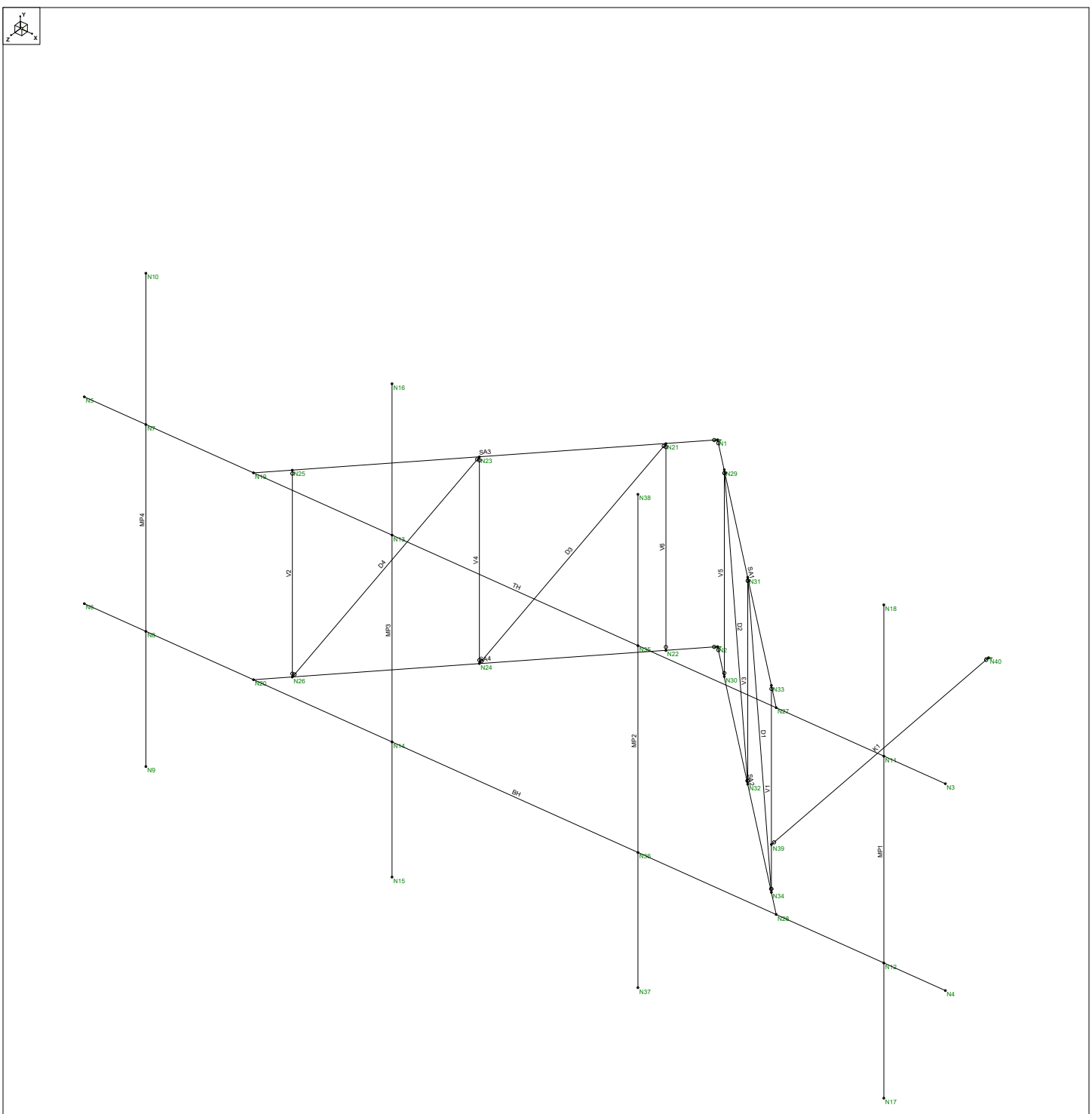
Ice Load on Antennas TIA-222-G

Ice Weight :	56	pcf	Ice Density
t_i :	0.75		Design Ice Thickness
Occupancy :	II		Classification of Structures (Table 2-1)
Exposure :	C		Exposure Category
V_i :	50	mph	Basic Wind Speed (Annex B)
z :	257	ft	Height above ground level to the center of the antenna
I :	1.00		Importance Factor (Table 2-3)
K_{iz} :	1.23		Height Escalation Factor for Ice Thickness
K_{zt} :	1.41		Topographic Factor (2.6.6.4)
t_{iz} :	2.08	in	Design Thickness of Radial Ice at Height z (2.6.8)

Platform Grating :	None	
Ice Load :		psf

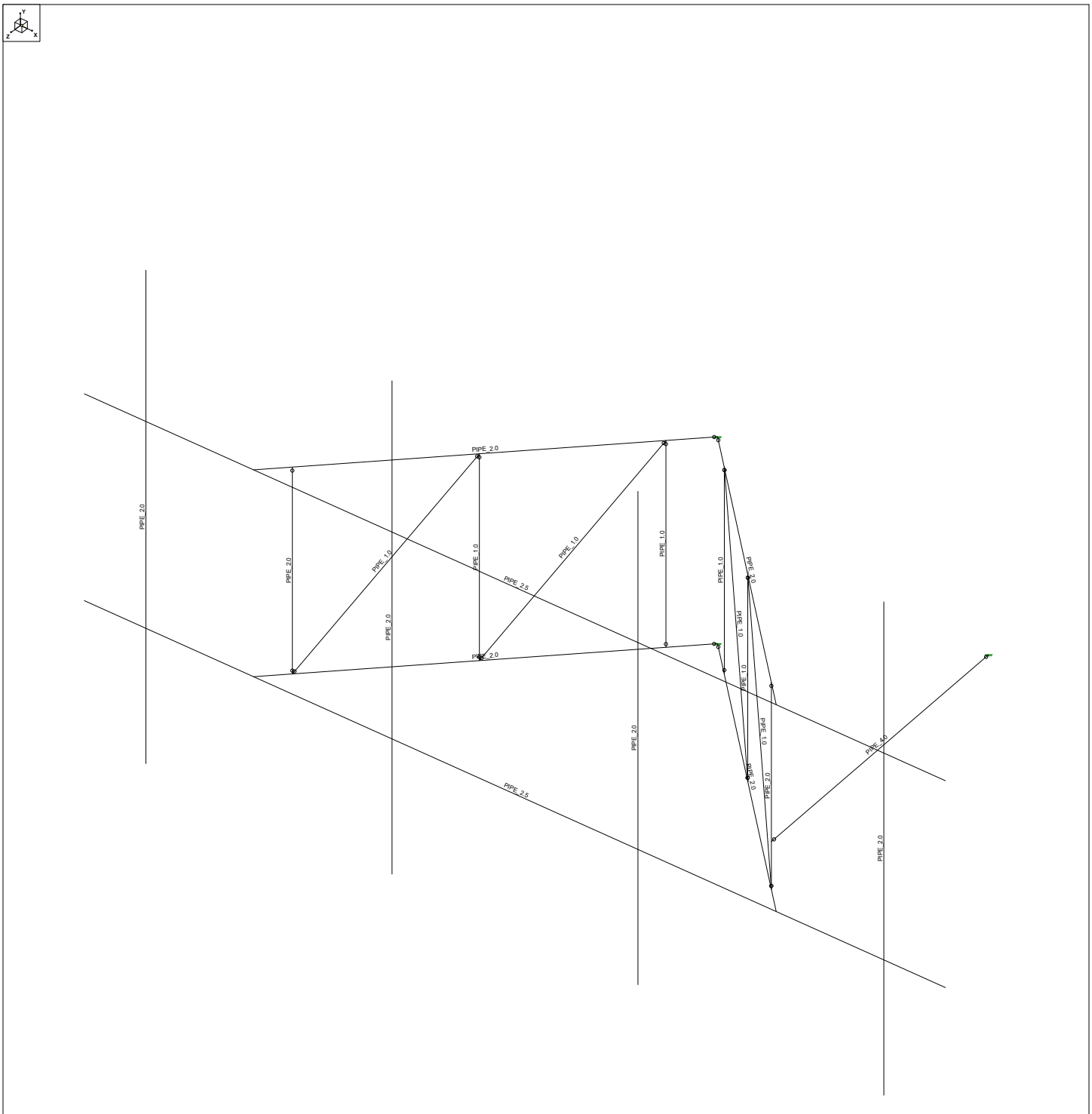
Mount & Antenna Ice Wind Loads

Appurtenance	Height	Width	Depth	Diam.	Area	Perim.	Ice Weight	
	in	*in*	*in*	*in*	*sq in*	*in*	*lb*	*plf*
NNVV-65B-R4	76.2	23.8	12.0	21.10	151.31	63.11	353.1	
AAHC	29.8	23.9	13.8	21.95	156.92	67.05	130.3	
1900MHz 4x45W RRH	29.3	15.3	14.8	15.41	114.19	51.89	92.9	
800MHz 2x50W RRH	23.2	17.2	16.4	17.83	129.98	58.71	80.0	
Pipe2-1/2STD x 14 ft	172.2	7.0	7.0	2.88	32.34	15.56	176.1	12.6
Pipe2STD x 7.75 ft	97.2	6.5	6.5	2.38	29.08	13.99	87.6	11.3
Pipe2STD x 6 ft	76.2	6.5	6.5	2.38	29.08	13.99	67.8	11.3
Pipe2STD x 3.25 ft	43.2	6.5	6.5	2.38	29.08	13.99	36.8	11.3
Pipe1STD x 4 ft	52.2	5.5	5.5	1.32	22.16	10.66	34.5	8.6
Pipe1STD x 3.25 ft	43.2	5.5	5.5	1.32	22.16	10.66	28.0	8.6
Pipe4STD x 5 ft	64.2	8.7	8.7	4.50	42.95	20.67	83.5	16.7



Envelope Only Solution

Ramaker & Associates	CT0068 (CT72XC033-A)	SK - 1
KLP		July 24, 2018 at 8:34 AM
28758		28758 Mount Rev3.r3d



Envelope Only Solution

Ramaker & Associates	CT0068 (CT72XC033-A)	SK - 2
KLP		July 24, 2018 at 8:34 AM
28758		28758 Mount Rev3.r3d

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
3	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.4	58	1.3
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.4	58	1.3
6	A53 Gr. B	29000	11154	.3	.65	.49	35	1.5	60	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Pipe_4.0	PIPE_4.0	Beam	Pipe	A53 Gr. B	Typical	2.96	6.82	6.82	13.6
2	Pipe_3.5	PIPE_3.5	Beam	Pipe	A53 Gr. B	Typical	2.5	4.52	4.52	9.04
3	Pipe_2.5	PIPE_2.5	Beam	Pipe	A53 Gr. B	Typical	1.61	1.45	1.45	2.89
4	Pipe_2.0	PIPE_2.0	Beam	Pipe	A53 Gr. B	Typical	1.02	.627	.627	1.25
5	Pipe_1.0	PIPE_1.0	Beam	Pipe	A53 Gr. B	Typical	.469	.083	.083	.166

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	TH	N5	N3			Pipe_2.5	Beam	Pipe	A53 Gr. B	Typical
2	BH	N6	N4			Pipe_2.5	Beam	Pipe	A53 Gr. B	Typical
3	MP4	N9	N10			Pipe_2.0	Beam	Pipe	A53 Gr. B	Typical
4	SA3	N1	N19			Pipe_2.0	Beam	Pipe	A53 Gr. B	Typical
5	SA4	N2	N20			Pipe_2.0	Beam	Pipe	A53 Gr. B	Typical
6	V6	N21	N22			Pipe_1.0	Beam	Pipe	A53 Gr. B	Typical
7	V4	N23	N24			Pipe_1.0	Beam	Pipe	A53 Gr. B	Typical
8	V2	N25	N26			Pipe_2.0	Beam	Pipe	A53 Gr. B	Typical
9	D3	N21	N24			Pipe_1.0	Beam	Pipe	A53 Gr. B	Typical
10	D4	N23	N26			Pipe_1.0	Beam	Pipe	A53 Gr. B	Typical
11	MP1	N17	N18			Pipe_2.0	Beam	Pipe	A53 Gr. B	Typical
12	MP2	N37	N38			Pipe_2.0	Beam	Pipe	A53 Gr. B	Typical
13	SA1	N1	N27			Pipe_2.0	Beam	Pipe	A53 Gr. B	Typical
14	SA2	N2	N28			Pipe_2.0	Beam	Pipe	A53 Gr. B	Typical
15	V5	N29	N30			Pipe_1.0	Beam	Pipe	A53 Gr. B	Typical
16	V3	N31	N32			Pipe_1.0	Beam	Pipe	A53 Gr. B	Typical
17	V1	N33	N34			Pipe_2.0	Beam	Pipe	A53 Gr. B	Typical
18	D2	N29	N32			Pipe_1.0	Beam	Pipe	A53 Gr. B	Typical
19	D1	N31	N34			Pipe_1.0	Beam	Pipe	A53 Gr. B	Typical
20	MP3	N15	N16			Pipe_2.0	Beam	Pipe	A53 Gr. B	Typical
21	K1	N39	N40			Pipe_4.0	Beam	Pipe	A53 Gr. B	Typical

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribu...	Area(M...	Surface...
1	Dead Load	None		-1			6			
2	Antenna Wind 0	None					12			
3	Antenna Wind 30	None					12			
4	Antenna Wind 45	None					12			
5	Antenna Wind 60	None					12			
6	Antenna Wind 90	None					12			
7	Antenna Wind 120	None					12			
8	Antenna Wind 135	None					12			
9	Antenna Wind 150	None					12			
10	Antenna Wind 180	None					12			

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribu..	Area(M...	Surface...
11	Antenna Wind 210	None					12			
12	Antenna Wind 225	None					12			
13	Antenna Wind 240	None					12			
14	Antenna Wind 270	None					12			
15	Antenna Wind 300	None					12			
16	Antenna Wind 315	None					12			
17	Antenna Wind 330	None					12			
18	Antenna Ice Dead Load	None					6			
19	Antenna Wind w/Ice 0	None					12			
20	Antenna Wind w/Ice 30	None					12			
21	Antenna Wind w/Ice 45	None					12			
22	Antenna Wind w/Ice 60	None					12			
23	Antenna Wind w/Ice 90	None					12			
24	Antenna Wind w/Ice 120	None					12			
25	Antenna Wind w/Ice 135	None					12			
26	Antenna Wind w/Ice 150	None					12			
27	Antenna Wind w/Ice 180	None					12			
28	Antenna Wind w/Ice 210	None					12			
29	Antenna Wind w/Ice 225	None					12			
30	'Antenna Wind w/Ice 240	None					12			
31	Antenna Wind w/Ice 270	None					12			
32	Antenna Wind w/Ice 300	None					12			
33	Antenna Wind w/Ice 315	None					12			
34	Antenna Wind w/Ice 330	None					12			
35	Member Wind 0	None						42		
36	Member Wind 30	None						42		
37	Member Wind 45	None						42		
38	Member Wind 60	None						42		
39	Member Wind 90	None						42		
40	Member Wind 120	None						42		
41	Member Wind 135	None						42		
42	Member Wind 150	None						42		
43	Member Wind 180	None						42		
44	Member Wind 210	None						42		
45	Member Wind 225	None						42		
46	Member Wind 240	None						42		
47	Member Wind 270	None						42		
48	Member Wind 300	None						42		
49	Member Wind 315	None						42		
50	Member Wind 330	None						42		
51	Member Ice Dead Load	None						21		
52	Member Wind w/Ice 0	None						42		
53	Member Wind w/Ice 30	None						42		
54	Member Wind w/Ice 45	None						42		
55	Member Wind w/Ice 60	None						42		
56	Member Wind w/Ice 90	None						42		
57	Member Wind w/Ice 120	None						42		
58	Member Wind w/Ice 135	None						42		
59	Member Wind w/Ice 150	None						42		
60	Member Wind w/Ice 180	None						42		
61	Member Wind w/Ice 210	None						42		
62	Member Wind w/Ice 225	None						42		
63	Member Wind w/Ice 240	None						42		
64	Member Wind w/Ice 270	None						42		
65	Member Wind w/Ice 300	None						42		
66	Member Wind w/Ice 315	None						42		
67	Member Wind w/Ice 330	None						42		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribu..	Area(M...	Surface...
68	LV-1	None					1			
69	LV-2	None					1			
70	LV-3	None					1			
71	LV-4	None					1			
72	LV-5	None					1			
73	LV-6	None					1			
74	LV-7	None								
75	LV-8	None								
76	LV-9	None								
77	LV-10	None								
78	LV-11	None								
79	LV-12	None								
80	LV-13	None								
81	LV-14	None								
82	LV-15	None								
83	LM-1	None					1			
84	LM-2	None					1			
85	LM-3	None					1			
86	LM-4	None					1			
87	LM-5	None								
88	LM-6	None								
89	LM-7	None								
90	LM-8	None								
91	LM-9	None								
92	LM-10	None								
93	LM-11	None								
94	LM-12	None								
95	LM-13	None								
96	LM-14	None								
97	LM-15	None								

Load Combinations

	Description	...	PD...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	F...	B...	F...	...	F...	...	F...	...	F...	...	F...	...	F...	...	F...
1	1.4D	...	Y		1	1.4																				
2	0.9D + 1.6 (0-Wind)	...	Y		1	.9	2	1.6	35	1.6																
3	0.9D + 1.6 (30-Wind)	...	Y		1	.9	3	1.6	36	1.6																
4	0.9D + 1.6 (45-Wind)	...	Y		1	.9	4	1.6	37	1.6																
5	0.9D + 1.6 (60-Wind)	...	Y		1	.9	5	1.6	38	1.6																
6	0.9D + 1.6 (90-Wind)	...	Y		1	.9	6	1.6	39	1.6																
7	0.9D + 1.6 (120-Wind)	...	Y		1	.9	7	1.6	40	1.6																
8	0.9D + 1.6 (135-Wind)	...	Y		1	.9	8	1.6	41	1.6																
9	0.9D + 1.6 (150-Wind)	...	Y		1	.9	9	1.6	42	1.6																
10	0.9D + 1.6 (180-Wind)	...	Y		1	.9	10	1.6	43	1.6																
11	0.9D + 1.6 (210-Wind)	...	Y		1	.9	11	1.6	44	1.6																
12	0.9D + 1.6 (225-Wind)	...	Y		1	.9	12	1.6	45	1.6																
13	0.9D + 1.6 (240-Wind)	...	Y		1	.9	13	1.6	46	1.6																
14	0.9D + 1.6 (270-Wind)	...	Y		1	.9	14	1.6	47	1.6																
15	0.9D + 1.6 (300-Wind)	...	Y		1	.9	15	1.6	48	1.6																
16	0.9D + 1.6 (315-Wind)	...	Y		1	.9	16	1.6	49	1.6																
17	0.9D + 1.6 (330-Wind)	...	Y		1	.9	17	1.6	50	1.6																
18	1.2D + 1.6 (0-Wind)	...	Y		1	1.2	2	1.6	35	1.6																
19	1.2D + 1.6 (30-Wind)	...	Y		1	1.2	3	1.6	36	1.6																
20	1.2D + 1.6 (45-Wind)	...	Y		1	1.2	4	1.6	37	1.6																
21	1.2D + 1.6 (60-Wind)	...	Y		1	1.2	5	1.6	38	1.6																
22	1.2D + 1.6 (90-Wind)	...	Y		1	1.2	6	1.6	39	1.6																

Load Combinations (Continued)

	Description	...	PD	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	F...	B...	F...	...	F...	...	F...	...	F...	...	F...	...	F...
23	1.2D + 1.6 (120-Wind)	...	Y		1	1.2	7	1.6	40	1.6														
24	1.2D + 1.6 (135-Wind)	...	Y		1	1.2	8	1.6	41	1.6														
25	1.2D + 1.6 (150-Wind)	...	Y		1	1.2	9	1.6	42	1.6														
26	1.2D + 1.6 (180-Wind)	...	Y		1	1.2	10	1.6	43	1.6														
27	1.2D + 1.6 (210-Wind)	...	Y		1	1.2	11	1.6	44	1.6														
28	1.2D + 1.6 (225-Wind)	...	Y		1	1.2	12	1.6	45	1.6														
29	1.2D + 1.6 (240-Wind)	...	Y		1	1.2	13	1.6	46	1.6														
30	1.2D + 1.6 (270-Wind)	...	Y		1	1.2	14	1.6	47	1.6														
31	1.2D + 1.6 (300-Wind)	...	Y		1	1.2	15	1.6	48	1.6														
32	1.2D + 1.6 (315-Wind)	...	Y		1	1.2	16	1.6	49	1.6														
33	1.2D + 1.6 (330-Wind)	...	Y		1	1.2	17	1.6	50	1.6														
34	1.2D + 1.0Di + 1.0 (0-Wind Ice)	...	Y		1	1.2	18	1	51	1	19	1	52	1										
35	1.2D + 1.0Di + 1.0 (30-Wind Ice)	...	Y		1	1.2	18	1	51	1	20	1	53	1										
36	1.2D + 1.0Di + 1.0 (45-Wind Ice)	...	Y		1	1.2	18	1	51	1	21	1	54	1										
37	1.2D + 1.0Di + 1.0 (60-Wind Ice)	...	Y		1	1.2	18	1	51	1	22	1	55	1										
38	1.2D + 1.0Di + 1.0 (90-Wind Ice)	...	Y		1	1.2	18	1	51	1	23	1	56	1										
39	1.2D + 1.0Di + 1.0 (120-Wind Ice)	...	Y		1	1.2	18	1	51	1	24	1	57	1										
40	1.2D + 1.0Di + 1.0 (135-Wind Ice)	...	Y		1	1.2	18	1	51	1	25	1	58	1										
41	1.2D + 1.0Di + 1.0 (150-Wind Ice)	...	Y		1	1.2	18	1	51	1	26	1	59	1										
42	1.2D + 1.0Di + 1.0 (180-Wind Ice)	...	Y		1	1.2	18	1	51	1	27	1	60	1										
43	1.2D + 1.0Di + 1.0 (210-Wind Ice)	...	Y		1	1.2	18	1	51	1	28	1	61	1										
44	1.2D + 1.0Di + 1.0 (225-Wind Ice)	...	Y		1	1.2	18	1	51	1	29	1	62	1										
45	1.2D + 1.0Di + 1.0 (240-Wind Ice)	...	Y		1	1.2	18	1	51	1	30	1	63	1										
46	1.2D + 1.0Di + 1.0 (270-Wind Ice)	...	Y		1	1.2	18	1	51	1	31	1	64	1										
47	1.2D + 1.0Di + 1.0 (300-Wind Ice)	...	Y		1	1.2	18	1	51	1	32	1	65	1										
48	1.2D + 1.0Di + 1.0 (315-Wind Ice)	...	Y		1	1.2	18	1	51	1	33	1	66	1										
49	1.2D + 1.0Di + 1.0 (330-Wind Ice)	...	Y		1	1.2	18	1	51	1	34	1	67	1										
50	1.2D + 1.5LV-1	...	Y		1	1.2	68	1.5																
51	1.2D + 1.5LV-2	...	Y		1	1.2	69	1.5																
52	1.2D + 1.5LV-3	...	Y		1	1.2	70	1.5																
53	1.2D + 1.5LV-4	...	Y		1	1.2	71	1.5																
54	1.2D + 1.5LV-5	...	Y		1	1.2	72	1.5																
55	1.2D + 1.5LV-6	...	Y		1	1.2	73	1.5																
56	1.2D + 1.5LV-7	...	Y		1	1.2	74	1.5																
57	1.2D + 1.5LV-8	...	Y		1	1.2	75	1.5																
58	1.2D + 1.5LV-9	...	Y		1	1.2	76	1.5																
59	1.2D + 1.5LV-10	...	Y		1	1.2	77	1.5																
60	1.2D + 1.5LV-11	...	Y		1	1.2	78	1.5																
61	1.2D + 1.5LV-12	...	Y		1	1.2	79	1.5																
62	1.2D + 1.5LV-13	...	Y		1	1.2	80	1.5																
63	1.2D + 1.5LV-14	...	Y		1	1.2	81	1.5																
64	1.2D + 1.5LV-15	...	Y		1	1.2	82	1.5																
65	1.2D + 1.5LM-1 + Maintenance (0-Wind)	...	Y		1	1.2	83	1.5	2	.104	35	.1...												
66	1.2D + 1.5LM-1 + Maintenance (30-Wind)	...	Y		1	1.2	83	1.5	3	.104	36	.1...												
67	1.2D + 1.5LM-1 + Maintenance (45-Wind)	...	Y		1	1.2	83	1.5	4	.104	37	.1...												
68	1.2D + 1.5LM-1 + Maintenance (60-Wind)	...	Y		1	1.2	83	1.5	5	.104	38	.1...												
69	1.2D + 1.5LM-1 + Maintenance (90-Wind)	...	Y		1	1.2	83	1.5	6	.104	39	.1...												
70	1.2D + 1.5LM-1 + Maintenance (120-Wind)	...	Y		1	1.2	83	1.5	7	.104	40	.1...												
71	1.2D + 1.5LM-1 + Maintenance (135-Wind)	...	Y		1	1.2	83	1.5	8	.104	41	.1...												
72	1.2D + 1.5LM-1 + Maintenance (150-Wind)	...	Y		1	1.2	83	1.5	9	.104	42	.1...												
73	1.2D + 1.5LM-1 + Maintenance (180-Wind)	...	Y		1	1.2	83	1.5	10	.104	43	.1...												
74	1.2D + 1.5LM-1 + Maintenance (210-Wind)	...	Y		1	1.2	83	1.5	11	.104	44	.1...												
75	1.2D + 1.5LM-1 + Maintenance (225-Wind)	...	Y		1	1.2	83	1.5	12	.104	45	.1...												
76	1.2D + 1.5LM-1 + Maintenance (240-Wind)	...	Y		1	1.2	83	1.5	13	.104	46	.1...												
77	1.2D + 1.5LM-1 + Maintenance (270-Wind)	...	Y		1	1.2	83	1.5	14	.104	47	.1...												
78	1.2D + 1.5LM-1 + Maintenance (300-Wind)	...	Y		1	1.2	83	1.5	15	.104	48	.1...												
79	1.2D + 1.5LM-1 + Maintenance (315-Wind)	...	Y		1	1.2	83	1.5	16	.104	49	.1...												

Load Combinations (Continued)

	Description	...	PD...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	F...	B...	F...	...	F...	...	F...	...	F...	...	F...	...	F...
80	1.2D + 1.5LM-1 + Maintenance (330-Wind)	...	Y		1	1.2	83	1.5	17	.104	50	.1...												
81	1.2D + 1.5LM-2 + Maintenance (0-Wind)	...	Y		1	1.2	84	1.5	2	.104	35	.1...												
82	1.2D + 1.5LM-2 + Maintenance (30-Wind)	...	Y		1	1.2	84	1.5	3	.104	36	.1...												
83	1.2D + 1.5LM-2 + Maintenance (45-Wind)	...	Y		1	1.2	84	1.5	4	.104	37	.1...												
84	1.2D + 1.5LM-2 + Maintenance (60-Wind)	...	Y		1	1.2	84	1.5	5	.104	38	.1...												
85	1.2D + 1.5LM-2 + Maintenance (90-Wind)	...	Y		1	1.2	84	1.5	6	.104	39	.1...												
86	1.2D + 1.5LM-2 + Maintenance (120-Wind)	...	Y		1	1.2	84	1.5	7	.104	40	.1...												
87	1.2D + 1.5LM-2 + Maintenance (135-Wind)	...	Y		1	1.2	84	1.5	8	.104	41	.1...												
88	1.2D + 1.5LM-2 + Maintenance (150-Wind)	...	Y		1	1.2	84	1.5	9	.104	42	.1...												
89	1.2D + 1.5LM-2 + Maintenance (180-Wind)	...	Y		1	1.2	84	1.5	10	.104	43	.1...												
90	1.2D + 1.5LM-2 + Maintenance (210-Wind)	...	Y		1	1.2	84	1.5	11	.104	44	.1...												
91	1.2D + 1.5LM-2 + Maintenance (225-Wind)	...	Y		1	1.2	84	1.5	12	.104	45	.1...												
92	1.2D + 1.5LM-2 + Maintenance (240-Wind)	...	Y		1	1.2	84	1.5	13	.104	46	.1...												
93	1.2D + 1.5LM-2 + Maintenance (270-Wind)	...	Y		1	1.2	84	1.5	14	.104	47	.1...												
94	1.2D + 1.5LM-2 + Maintenance (300-Wind)	...	Y		1	1.2	84	1.5	15	.104	48	.1...												
95	1.2D + 1.5LM-2 + Maintenance (315-Wind)	...	Y		1	1.2	84	1.5	16	.104	49	.1...												
96	1.2D + 1.5LM-2 + Maintenance (330-Wind)	...	Y		1	1.2	84	1.5	17	.104	50	.1...												
97	1.2D + 1.5LM-3 + Maintenance (0-Wind)	...	Y		1	1.2	85	1.5	2	.104	35	.1...												
98	1.2D + 1.5LM-3 + Maintenance (30-Wind)	...	Y		1	1.2	85	1.5	3	.104	36	.1...												
99	1.2D + 1.5LM-3 + Maintenance (45-Wind)	...	Y		1	1.2	85	1.5	4	.104	37	.1...												
100	1.2D + 1.5LM-3 + Maintenance (60-Wind)	...	Y		1	1.2	85	1.5	5	.104	38	.1...												
101	1.2D + 1.5LM-3 + Maintenance (90-Wind)	...	Y		1	1.2	85	1.5	6	.104	39	.1...												
102	1.2D + 1.5LM-3 + Maintenance (120-Wind)	...	Y		1	1.2	85	1.5	7	.104	40	.1...												
103	1.2D + 1.5LM-3 + Maintenance (135-Wind)	...	Y		1	1.2	85	1.5	8	.104	41	.1...												
104	1.2D + 1.5LM-3 + Maintenance (150-Wind)	...	Y		1	1.2	85	1.5	9	.104	42	.1...												
105	1.2D + 1.5LM-3 + Maintenance (180-Wind)	...	Y		1	1.2	85	1.5	10	.104	43	.1...												
106	1.2D + 1.5LM-3 + Maintenance (210-Wind)	...	Y		1	1.2	85	1.5	11	.104	44	.1...												
107	1.2D + 1.5LM-3 + Maintenance (225-Wind)	...	Y		1	1.2	85	1.5	12	.104	45	.1...												
108	1.2D + 1.5LM-3 + Maintenance (240-Wind)	...	Y		1	1.2	85	1.5	13	.104	46	.1...												
109	1.2D + 1.5LM-3 + Maintenance (270-Wind)	...	Y		1	1.2	85	1.5	14	.104	47	.1...												
110	1.2D + 1.5LM-3 + Maintenance (300-Wind)	...	Y		1	1.2	85	1.5	15	.104	48	.1...												
111	1.2D + 1.5LM-3 + Maintenance (315-Wind)	...	Y		1	1.2	85	1.5	16	.104	49	.1...												
112	1.2D + 1.5LM-3 + Maintenance (330-Wind)	...	Y		1	1.2	85	1.5	17	.104	50	.1...												
113	1.2D + 1.5LM-4 + Maintenance (0-Wind)	...	Y		1	1.2	86	1.5	2	.104	35	.1...												
114	1.2D + 1.5LM-4 + Maintenance (30-Wind)	...	Y		1	1.2	86	1.5	3	.104	36	.1...												
115	1.2D + 1.5LM-4 + Maintenance (45-Wind)	...	Y		1	1.2	86	1.5	4	.104	37	.1...												
116	1.2D + 1.5LM-4 + Maintenance (60-Wind)	...	Y		1	1.2	86	1.5	5	.104	38	.1...												
117	1.2D + 1.5LM-4 + Maintenance (90-Wind)	...	Y		1	1.2	86	1.5	6	.104	39	.1...												
118	1.2D + 1.5LM-4 + Maintenance (120-Wind)	...	Y		1	1.2	86	1.5	7	.104	40	.1...												
119	1.2D + 1.5LM-4 + Maintenance (135-Wind)	...	Y		1	1.2	86	1.5	8	.104	41	.1...												
120	1.2D + 1.5LM-4 + Maintenance (150-Wind)	...	Y		1	1.2	86	1.5	9	.104	42	.1...												
121	1.2D + 1.5LM-4 + Maintenance (180-Wind)	...	Y		1	1.2	86	1.5	10	.104	43	.1...												
122	1.2D + 1.5LM-4 + Maintenance (210-Wind)	...	Y		1	1.2	86	1.5	11	.104	44	.1...												
123	1.2D + 1.5LM-4 + Maintenance (225-Wind)	...	Y		1	1.2	86	1.5	12	.104	45	.1...												
124	1.2D + 1.5LM-4 + Maintenance (240-Wind)	...	Y		1	1.2	86	1.5	13	.104	46	.1...												
125	1.2D + 1.5LM-4 + Maintenance (270-Wind)	...	Y		1	1.2	86	1.5	14	.104	47	.1...												
126	1.2D + 1.5LM-4 + Maintenance (300-Wind)	...	Y		1	1.2	86	1.5	15	.104	48	.1...												
127	1.2D + 1.5LM-4 + Maintenance (315-Wind)	...	Y		1	1.2	86	1.5	16	.104	49	.1...												
128	1.2D + 1.5LM-4 + Maintenance (330-Wind)	...	Y		1	1.2	86	1.5	17	.104	50	.1...												
129	1.2D + 1.5LM-5 + Maintenance (0-Wind)	...	Y		1	1.2	87	1.5	2	.104	35	.1...												
130	1.2D + 1.5LM-5 + Maintenance (30-Wind)	...	Y		1	1.2	87	1.5	3	.104	36	.1...												
131	1.2D + 1.5LM-5 + Maintenance (45-Wind)	...	Y		1	1.2	87	1.5	4	.104	37	.1...												
132	1.2D + 1.5LM-5 + Maintenance (60-Wind)	...	Y		1	1.2	87	1.5	5	.104	38	.1...												
133	1.2D + 1.5LM-5 + Maintenance (90-Wind)	...	Y		1	1.2	87	1.5	6	.104	39	.1...												
134	1.2D + 1.5LM-5 + Maintenance (120-Wind)	...	Y		1	1.2	87	1.5	7	.104	40	.1...												
135	1.2D + 1.5LM-5 + Maintenance (135-Wind)	...	Y		1	1.2	87	1.5	8	.104	41	.1...												
136	1.2D + 1.5LM-5 + Maintenance (150-Wind)	...	Y		1	1.2	87	1.5	9	.104	42	.1...												

Load Combinations (Continued)

	Description	...	PD	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	F...	B...	F...	...	F...	...	F...	...	F...	...	F...	...	F...
137	1.2D + 1.5LM-5 + Maintenance (180-Wind)	...	Y		1	1.2	87	1.5	10	.104	43	.1...												
138	1.2D + 1.5LM-5 + Maintenance (210-Wind)	...	Y		1	1.2	87	1.5	11	.104	44	.1...												
139	1.2D + 1.5LM-5 + Maintenance (225-Wind)	...	Y		1	1.2	87	1.5	12	.104	45	.1...												
140	1.2D + 1.5LM-5 + Maintenance (240-Wind)	...	Y		1	1.2	87	1.5	13	.104	46	.1...												
141	1.2D + 1.5LM-5 + Maintenance (270-Wind)	...	Y		1	1.2	87	1.5	14	.104	47	.1...												
142	1.2D + 1.5LM-5 + Maintenance (300-Wind)	...	Y		1	1.2	87	1.5	15	.104	48	.1...												
143	1.2D + 1.5LM-5 + Maintenance (315-Wind)	...	Y		1	1.2	87	1.5	16	.104	49	.1...												
144	1.2D + 1.5LM-5 + Maintenance (330-Wind)	...	Y		1	1.2	87	1.5	17	.104	50	.1...												
145	1.2D + 1.5LM-6 + Maintenance (0-Wind)	...	Y		1	1.2	88	1.5	2	.104	35	.1...												
146	1.2D + 1.5LM-6 + Maintenance (30-Wind)	...	Y		1	1.2	88	1.5	3	.104	36	.1...												
147	1.2D + 1.5LM-6 + Maintenance (45-Wind)	...	Y		1	1.2	88	1.5	4	.104	37	.1...												
148	1.2D + 1.5LM-6 + Maintenance (60-Wind)	...	Y		1	1.2	88	1.5	5	.104	38	.1...												
149	1.2D + 1.5LM-6 + Maintenance (90-Wind)	...	Y		1	1.2	88	1.5	6	.104	39	.1...												
150	1.2D + 1.5LM-6 + Maintenance (120-Wind)	...	Y		1	1.2	88	1.5	7	.104	40	.1...												
151	1.2D + 1.5LM-6 + Maintenance (135-Wind)	...	Y		1	1.2	88	1.5	8	.104	41	.1...												
152	1.2D + 1.5LM-6 + Maintenance (150-Wind)	...	Y		1	1.2	88	1.5	9	.104	42	.1...												
153	1.2D + 1.5LM-6 + Maintenance (180-Wind)	...	Y		1	1.2	88	1.5	10	.104	43	.1...												
154	1.2D + 1.5LM-6 + Maintenance (210-Wind)	...	Y		1	1.2	88	1.5	11	.104	44	.1...												
155	1.2D + 1.5LM-6 + Maintenance (225-Wind)	...	Y		1	1.2	88	1.5	12	.104	45	.1...												
156	1.2D + 1.5LM-6 + Maintenance (240-Wind)	...	Y		1	1.2	88	1.5	13	.104	46	.1...												
157	1.2D + 1.5LM-6 + Maintenance (270-Wind)	...	Y		1	1.2	88	1.5	14	.104	47	.1...												
158	1.2D + 1.5LM-6 + Maintenance (300-Wind)	...	Y		1	1.2	88	1.5	15	.104	48	.1...												
159	1.2D + 1.5LM-6 + Maintenance (315-Wind)	...	Y		1	1.2	88	1.5	16	.104	49	.1...												
160	1.2D + 1.5LM-6 + Maintenance (330-Wind)	...	Y		1	1.2	88	1.5	17	.104	50	.1...												
161	1.2D + 1.5LM-7 + Maintenance (0-Wind)	...	Y		1	1.2	89	1.5	2	.104	35	.1...												
162	1.2D + 1.5LM-7 + Maintenance (30-Wind)	...	Y		1	1.2	89	1.5	3	.104	36	.1...												
163	1.2D + 1.5LM-7 + Maintenance (45-Wind)	...	Y		1	1.2	89	1.5	4	.104	37	.1...												
164	1.2D + 1.5LM-7 + Maintenance (60-Wind)	...	Y		1	1.2	89	1.5	5	.104	38	.1...												
165	1.2D + 1.5LM-7 + Maintenance (90-Wind)	...	Y		1	1.2	89	1.5	6	.104	39	.1...												
166	1.2D + 1.5LM-7 + Maintenance (120-Wind)	...	Y		1	1.2	89	1.5	7	.104	40	.1...												
167	1.2D + 1.5LM-7 + Maintenance (135-Wind)	...	Y		1	1.2	89	1.5	8	.104	41	.1...												
168	1.2D + 1.5LM-7 + Maintenance (150-Wind)	...	Y		1	1.2	89	1.5	9	.104	42	.1...												
169	1.2D + 1.5LM-7 + Maintenance (180-Wind)	...	Y		1	1.2	89	1.5	10	.104	43	.1...												
170	1.2D + 1.5LM-7 + Maintenance (210-Wind)	...	Y		1	1.2	89	1.5	11	.104	44	.1...												
171	1.2D + 1.5LM-7 + Maintenance (225-Wind)	...	Y		1	1.2	89	1.5	12	.104	45	.1...												
172	1.2D + 1.5LM-7 + Maintenance (240-Wind)	...	Y		1	1.2	89	1.5	13	.104	46	.1...												
173	1.2D + 1.5LM-7 + Maintenance (270-Wind)	...	Y		1	1.2	89	1.5	14	.104	47	.1...												
174	1.2D + 1.5LM-7 + Maintenance (300-Wind)	...	Y		1	1.2	89	1.5	15	.104	48	.1...												
175	1.2D + 1.5LM-7 + Maintenance (315-Wind)	...	Y		1	1.2	89	1.5	16	.104	49	.1...												
176	1.2D + 1.5LM-7 + Maintenance (330-Wind)	...	Y		1	1.2	89	1.5	17	.104	50	.1...												
177	1.2D + 1.5LM-8 + Maintenance (0-Wind)	...	Y		1	1.2	90	1.5	2	.104	35	.1...												
178	1.2D + 1.5LM-8 + Maintenance (30-Wind)	...	Y		1	1.2	90	1.5	3	.104	36	.1...												
179	1.2D + 1.5LM-8 + Maintenance (45-Wind)	...	Y		1	1.2	90	1.5	4	.104	37	.1...												
180	1.2D + 1.5LM-8 + Maintenance (60-Wind)	...	Y		1	1.2	90	1.5	5	.104	38	.1...												
181	1.2D + 1.5LM-8 + Maintenance (90-Wind)	...	Y		1	1.2	90	1.5	6	.104	39	.1...												
182	1.2D + 1.5LM-8 + Maintenance (120-Wind)	...	Y		1	1.2	90	1.5	7	.104	40	.1...												
183	1.2D + 1.5LM-8 + Maintenance (135-Wind)	...	Y		1	1.2	90	1.5	8	.104	41	.1...												
184	1.2D + 1.5LM-8 + Maintenance (150-Wind)	...	Y		1	1.2	90	1.5	9	.104	42	.1...												
185	1.2D + 1.5LM-8 + Maintenance (180-Wind)	...	Y		1	1.2	90	1.5	10	.104	43	.1...												
186	1.2D + 1.5LM-8 + Maintenance (210-Wind)	...	Y		1	1.2	90	1.5	11	.104	44	.1...												
187	1.2D + 1.5LM-8 + Maintenance (225-Wind)	...	Y		1	1.2	90	1.5	12	.104	45	.1...												
188	1.2D + 1.5LM-8 + Maintenance (240-Wind)	...	Y		1	1.2	90	1.5	13	.104	46	.1...												
189	1.2D + 1.5LM-8 + Maintenance (270-Wind)	...	Y		1	1.2	90	1.5	14	.104	47	.1...												
190	1.2D + 1.5LM-8 + Maintenance (300-Wind)	...	Y		1	1.2	90	1.5	15	.104	48	.1...												
191	1.2D + 1.5LM-8 + Maintenance (315-Wind)	...	Y		1	1.2	90	1.5	16	.104	49	.1...												
192	1.2D + 1.5LM-8 + Maintenance (330-Wind)	...	Y		1	1.2	90	1.5	17	.104	50	.1...												
193	1.2D + 1.5LM-9 + Maintenance (0-Wind)	...	Y		1	1.2	91	1.5	2	.104	35	.1...												

Load Combinations (Continued)

	Description	...	PD	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	F...	B...	F...	...	F...	...	F...	...	F...	...	F...	...	F...
194	1.2D + 1.5LM-9 + Maintenance (30-Wind)	...	Y		1	1.2	91	1.5	3	.104	36	.1...												
195	1.2D + 1.5LM-9 + Maintenance (45-Wind)	...	Y		1	1.2	91	1.5	4	.104	37	.1...												
196	1.2D + 1.5LM-9 + Maintenance (60-Wind)	...	Y		1	1.2	91	1.5	5	.104	38	.1...												
197	1.2D + 1.5LM-9 + Maintenance (90-Wind)	...	Y		1	1.2	91	1.5	6	.104	39	.1...												
198	1.2D + 1.5LM-9 + Maintenance (120-Wind)	...	Y		1	1.2	91	1.5	7	.104	40	.1...												
199	1.2D + 1.5LM-9 + Maintenance (135-Wind)	...	Y		1	1.2	91	1.5	8	.104	41	.1...												
200	1.2D + 1.5LM-9 + Maintenance (150-Wind)	...	Y		1	1.2	91	1.5	9	.104	42	.1...												
201	1.2D + 1.5LM-9 + Maintenance (180-Wind)	...	Y		1	1.2	91	1.5	10	.104	43	.1...												
202	1.2D + 1.5LM-9 + Maintenance (210-Wind)	...	Y		1	1.2	91	1.5	11	.104	44	.1...												
203	1.2D + 1.5LM-9 + Maintenance (225-Wind)	...	Y		1	1.2	91	1.5	12	.104	45	.1...												
204	1.2D + 1.5LM-9 + Maintenance (240-Wind)	...	Y		1	1.2	91	1.5	13	.104	46	.1...												
205	1.2D + 1.5LM-9 + Maintenance (270-Wind)	...	Y		1	1.2	91	1.5	14	.104	47	.1...												
206	1.2D + 1.5LM-9 + Maintenance (300-Wind)	...	Y		1	1.2	91	1.5	15	.104	48	.1...												
207	1.2D + 1.5LM-9 + Maintenance (315-Wind)	...	Y		1	1.2	91	1.5	16	.104	49	.1...												
208	1.2D + 1.5LM-9 + Maintenance (330-Wind)	...	Y		1	1.2	91	1.5	17	.104	50	.1...												
209	1.2D + 1.5LM-10 + Maintenance (0-Wind)	...	Y		1	1.2	92	1.5	2	.104	35	.1...												
210	1.2D + 1.5LM-10 + Maintenance (30-Wind)	...	Y		1	1.2	92	1.5	3	.104	36	.1...												
211	1.2D + 1.5LM-10 + Maintenance (45-Wind)	...	Y		1	1.2	92	1.5	4	.104	37	.1...												
212	1.2D + 1.5LM-10 + Maintenance (60-Wind)	...	Y		1	1.2	92	1.5	5	.104	38	.1...												
213	1.2D + 1.5LM-10 + Maintenance (90-Wind)	...	Y		1	1.2	92	1.5	6	.104	39	.1...												
214	1.2D + 1.5LM-10 + Maintenance (120-Wind)	...	Y		1	1.2	92	1.5	7	.104	40	.1...												
215	1.2D + 1.5LM-10 + Maintenance (135-Wind)	...	Y		1	1.2	92	1.5	8	.104	41	.1...												
216	1.2D + 1.5LM-10 + Maintenance (150-Wind)	...	Y		1	1.2	92	1.5	9	.104	42	.1...												
217	1.2D + 1.5LM-10 + Maintenance (180-Wind)	...	Y		1	1.2	92	1.5	10	.104	43	.1...												
218	1.2D + 1.5LM-10 + Maintenance (210-Wind)	...	Y		1	1.2	92	1.5	11	.104	44	.1...												
219	1.2D + 1.5LM-10 + Maintenance (225-Wind)	...	Y		1	1.2	92	1.5	12	.104	45	.1...												
220	1.2D + 1.5LM-10 + Maintenance (240-Wind)	...	Y		1	1.2	92	1.5	13	.104	46	.1...												
221	1.2D + 1.5LM-10 + Maintenance (270-Wind)	...	Y		1	1.2	92	1.5	14	.104	47	.1...												
222	1.2D + 1.5LM-10 + Maintenance (300-Wind)	...	Y		1	1.2	92	1.5	15	.104	48	.1...												
223	1.2D + 1.5LM-10 + Maintenance (315-Wind)	...	Y		1	1.2	92	1.5	16	.104	49	.1...												
224	1.2D + 1.5LM-10 + Maintenance (330-Wind)	...	Y		1	1.2	92	1.5	17	.104	50	.1...												
225	1.2D + 1.5LM-11 + Maintenance (0-Wind)	...	Y		1	1.2	93	1.5	2	.104	35	.1...												
226	1.2D + 1.5LM-11 + Maintenance (30-Wind)	...	Y		1	1.2	93	1.5	3	.104	36	.1...												
227	1.2D + 1.5LM-11 + Maintenance (45-Wind)	...	Y		1	1.2	93	1.5	4	.104	37	.1...												
228	1.2D + 1.5LM-11 + Maintenance (60-Wind)	...	Y		1	1.2	93	1.5	5	.104	38	.1...												
229	1.2D + 1.5LM-11 + Maintenance (90-Wind)	...	Y		1	1.2	93	1.5	6	.104	39	.1...												
230	1.2D + 1.5LM-11 + Maintenance (120-Wind)	...	Y		1	1.2	93	1.5	7	.104	40	.1...												
231	1.2D + 1.5LM-11 + Maintenance (135-Wind)	...	Y		1	1.2	93	1.5	8	.104	41	.1...												
232	1.2D + 1.5LM-11 + Maintenance (150-Wind)	...	Y		1	1.2	93	1.5	9	.104	42	.1...												
233	1.2D + 1.5LM-11 + Maintenance (180-Wind)	...	Y		1	1.2	93	1.5	10	.104	43	.1...												
234	1.2D + 1.5LM-11 + Maintenance (210-Wind)	...	Y		1	1.2	93	1.5	11	.104	44	.1...												
235	1.2D + 1.5LM-11 + Maintenance (225-Wind)	...	Y		1	1.2	93	1.5	12	.104	45	.1...												
236	1.2D + 1.5LM-11 + Maintenance (240-Wind)	...	Y		1	1.2	93	1.5	13	.104	46	.1...												
237	1.2D + 1.5LM-11 + Maintenance (270-Wind)	...	Y		1	1.2	93	1.5	14	.104	47	.1...												
238	1.2D + 1.5LM-11 + Maintenance (300-Wind)	...	Y		1	1.2	93	1.5	15	.104	48	.1...												
239	1.2D + 1.5LM-11 + Maintenance (315-Wind)	...	Y		1	1.2	93	1.5	16	.104	49	.1...												
240	1.2D + 1.5LM-11 + Maintenance (330-Wind)	...	Y		1	1.2	93	1.5	17	.104	50	.1...												
241	1.2D + 1.5LM-12 + Maintenance (0-Wind)	...	Y		1	1.2	94	1.5	2	.104	35	.1...												
242	1.2D + 1.5LM-12 + Maintenance (30-Wind)	...	Y		1	1.2	94	1.5	3	.104	36	.1...												
243	1.2D + 1.5LM-12 + Maintenance (45-Wind)	...	Y		1	1.2	94	1.5	4	.104	37	.1...												
244	1.2D + 1.5LM-12 + Maintenance (60-Wind)	...	Y		1	1.2	94	1.5	5	.104	38	.1...												
245	1.2D + 1.5LM-12 + Maintenance (90-Wind)	...	Y		1	1.2	94	1.5	6	.104	39	.1...												
246	1.2D + 1.5LM-12 + Maintenance (120-Wind)	...	Y		1	1.2	94	1.5	7	.104	40	.1...												
247	1.2D + 1.5LM-12 + Maintenance (135-Wind)	...	Y		1	1.2	94	1.5	8	.104	41	.1...												
248	1.2D + 1.5LM-12 + Maintenance (150-Wind)	...	Y		1	1.2	94	1.5	9	.104	42	.1...												
249	1.2D + 1.5LM-12 + Maintenance (180-Wind)	...	Y		1	1.2	94	1.5	10	.104	43	.1...												
250	1.2D + 1.5LM-12 + Maintenance (210-Wind)	...	Y		1	1.2	94	1.5	11	.104	44	.1...												

Load Combinations (Continued)

	Description	...	PD...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	F...	B...	F...	...	F...	...	F...	...	F...	...	F...	...	F...
251	1.2D + 1.5LM-12 + Maintenance (225-Wind)	...	Y		1	1.2	94	1.5	12	.104	45	.1...												
252	1.2D + 1.5LM-12 + Maintenance (240-Wind)	...	Y		1	1.2	94	1.5	13	.104	46	.1...												
253	1.2D + 1.5LM-12 + Maintenance (270-Wind)	...	Y		1	1.2	94	1.5	14	.104	47	.1...												
254	1.2D + 1.5LM-12 + Maintenance (300-Wind)	...	Y		1	1.2	94	1.5	15	.104	48	.1...												
255	1.2D + 1.5LM-12 + Maintenance (315-Wind)	...	Y		1	1.2	94	1.5	16	.104	49	.1...												
256	1.2D + 1.5LM-12 + Maintenance (330-Wind)	...	Y		1	1.2	94	1.5	17	.104	50	.1...												
257	1.2D + 1.5LM-13 + Maintenance (0-Wind)	...	Y		1	1.2	95	1.5	2	.104	35	.1...												
258	1.2D + 1.5LM-13 + Maintenance (30-Wind)	...	Y		1	1.2	95	1.5	3	.104	36	.1...												
259	1.2D + 1.5LM-13 + Maintenance (45-Wind)	...	Y		1	1.2	95	1.5	4	.104	37	.1...												
260	1.2D + 1.5LM-13 + Maintenance (60-Wind)	...	Y		1	1.2	95	1.5	5	.104	38	.1...												
261	1.2D + 1.5LM-13 + Maintenance (90-Wind)	...	Y		1	1.2	95	1.5	6	.104	39	.1...												
262	1.2D + 1.5LM-13 + Maintenance (120-Wind)	...	Y		1	1.2	95	1.5	7	.104	40	.1...												
263	1.2D + 1.5LM-13 + Maintenance (135-Wind)	...	Y		1	1.2	95	1.5	8	.104	41	.1...												
264	1.2D + 1.5LM-13 + Maintenance (150-Wind)	...	Y		1	1.2	95	1.5	9	.104	42	.1...												
265	1.2D + 1.5LM-13 + Maintenance (180-Wind)	...	Y		1	1.2	95	1.5	10	.104	43	.1...												
266	1.2D + 1.5LM-13 + Maintenance (210-Wind)	...	Y		1	1.2	95	1.5	11	.104	44	.1...												
267	1.2D + 1.5LM-13 + Maintenance (225-Wind)	...	Y		1	1.2	95	1.5	12	.104	45	.1...												
268	1.2D + 1.5LM-13 + Maintenance (240-Wind)	...	Y		1	1.2	95	1.5	13	.104	46	.1...												
269	1.2D + 1.5LM-13 + Maintenance (270-Wind)	...	Y		1	1.2	95	1.5	14	.104	47	.1...												
270	1.2D + 1.5LM-13 + Maintenance (300-Wind)	...	Y		1	1.2	95	1.5	15	.104	48	.1...												
271	1.2D + 1.5LM-13 + Maintenance (315-Wind)	...	Y		1	1.2	95	1.5	16	.104	49	.1...												
272	1.2D + 1.5LM-13 + Maintenance (330-Wind)	...	Y		1	1.2	95	1.5	17	.104	50	.1...												
273	1.2D + 1.5LM-14 + Maintenance (0-Wind)	...	Y		1	1.2	96	1.5	2	.104	35	.1...												
274	1.2D + 1.5LM-14 + Maintenance (30-Wind)	...	Y		1	1.2	96	1.5	3	.104	36	.1...												
275	1.2D + 1.5LM-14 + Maintenance (45-Wind)	...	Y		1	1.2	96	1.5	4	.104	37	.1...												
276	1.2D + 1.5LM-14 + Maintenance (60-Wind)	...	Y		1	1.2	96	1.5	5	.104	38	.1...												
277	1.2D + 1.5LM-14 + Maintenance (90-Wind)	...	Y		1	1.2	96	1.5	6	.104	39	.1...												
278	1.2D + 1.5LM-14 + Maintenance (120-Wind)	...	Y		1	1.2	96	1.5	7	.104	40	.1...												
279	1.2D + 1.5LM-14 + Maintenance (135-Wind)	...	Y		1	1.2	96	1.5	8	.104	41	.1...												
280	1.2D + 1.5LM-14 + Maintenance (150-Wind)	...	Y		1	1.2	96	1.5	9	.104	42	.1...												
281	1.2D + 1.5LM-14 + Maintenance (180-Wind)	...	Y		1	1.2	96	1.5	10	.104	43	.1...												
282	1.2D + 1.5LM-14 + Maintenance (210-Wind)	...	Y		1	1.2	96	1.5	11	.104	44	.1...												
283	1.2D + 1.5LM-14 + Maintenance (225-Wind)	...	Y		1	1.2	96	1.5	12	.104	45	.1...												
284	1.2D + 1.5LM-14 + Maintenance (240-Wind)	...	Y		1	1.2	96	1.5	13	.104	46	.1...												
285	1.2D + 1.5LM-14 + Maintenance (270-Wind)	...	Y		1	1.2	96	1.5	14	.104	47	.1...												
286	1.2D + 1.5LM-14 + Maintenance (300-Wind)	...	Y		1	1.2	96	1.5	15	.104	48	.1...												
287	1.2D + 1.5LM-14 + Maintenance (315-Wind)	...	Y		1	1.2	96	1.5	16	.104	49	.1...												
288	1.2D + 1.5LM-14 + Maintenance (330-Wind)	...	Y		1	1.2	96	1.5	17	.104	50	.1...												
289	1.2D + 1.5LM-15 + Maintenance (0-Wind)	...	Y		1	1.2	97	1.5	2	.104	35	.1...												
290	1.2D + 1.5LM-15 + Maintenance (30-Wind)	...	Y		1	1.2	97	1.5	3	.104	36	.1...												
291	1.2D + 1.5LM-15 + Maintenance (45-Wind)	...	Y		1	1.2	97	1.5	4	.104	37	.1...												
292	1.2D + 1.5LM-15 + Maintenance (60-Wind)	...	Y		1	1.2	97	1.5	5	.104	38	.1...												
293	1.2D + 1.5LM-15 + Maintenance (90-Wind)	...	Y		1	1.2	97	1.5	6	.104	39	.1...												
294	1.2D + 1.5LM-15 + Maintenance (120-Wind)	...	Y		1	1.2	97	1.5	7	.104	40	.1...												
295	1.2D + 1.5LM-15 + Maintenance (135-Wind)	...	Y		1	1.2	97	1.5	8	.104	41	.1...												
296	1.2D + 1.5LM-15 + Maintenance (150-Wind)	...	Y		1	1.2	97	1.5	9	.104	42	.1...												
297	1.2D + 1.5LM-15 + Maintenance (180-Wind)	...	Y		1	1.2	97	1.5	10	.104	43	.1...												
298	1.2D + 1.5LM-15 + Maintenance (210-Wind)	...	Y		1	1.2	97	1.5	11	.104	44	.1...												
299	1.2D + 1.5LM-15 + Maintenance (225-Wind)	...	Y		1	1.2	97	1.5	12	.104	45	.1...												
300	1.2D + 1.5LM-15 + Maintenance (240-Wind)	...	Y		1	1.2	97	1.5	13	.104	46	.1...												
301	1.2D + 1.5LM-15 + Maintenance (270-Wind)	...	Y		1	1.2	97	1.5	14	.104	47	.1...												
302	1.2D + 1.5LM-15 + Maintenance (300-Wind)	...	Y		1	1.2	97	1.5	15	.104	48	.1...												
303	1.2D + 1.5LM-15 + Maintenance (315-Wind)	...	Y		1	1.2	97	1.5	16	.104	49	.1...												
304	1.2D + 1.5LM-15 + Maintenance (330-Wind)	...	Y		1	1.2	97	1.5	17	.104	50	.1...												

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N1	max	1116.845	78	1506.297	34	967.342	2	15.668	2	0	1	36.099	119
2		min	-1701.404	118	325.725	10	-3843.906	41	-39.218	89	0	1	-26.787	79
3	N2	max	1703.168	125	1391.068	42	4047.676	48	12.824	73	0	1	37.897	114
4		min	-1118.8	69	307.568	2	-1485.299	8	-37.395	97	0	1	-29.085	11
5	N40	max	138.877	4	73.002	45	2276.23	5	15.034	21	0	1	214.991	21
6		min	-130.568	12	21.742	5	-2275.306	13	-13.05	13	0	1	-186.625	13
7	Totals:	max	2061.663	30	2961.034	44	3193.654	18						
8		min	-2061.663	6	691.496	5	-3193.654	26						

Envelope AISC 13th(360-05): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [l...	phi*Pnt [lb]	phi*Mn y-...	phi*Mn z-...	Cb	Eqn
1	TH	PIPE_2.5	.233	5.104	26	.119	2.771		18	11606.18	50715	3596.25	3596.25	2....	H1-1b
2	BH	PIPE_2.5	.206	11.229	19	.097	2.771		26	11606.18	50715	3596.25	3596.25	2....	H1-1b
3	MP4	PIPE_2.0	.207	2.18	68	.028	2.18		70	15637.171	32130	1871.625	1871.625	3	H1-1b
4	SA3	PIPE_2.0	.260	.625	44	.089	0		43	20866.733	32130	1871.625	1871.625	2....	H1-1b
5	SA4	PIPE_2.0	.281	.688	48	.086	0		35	20866.733	32130	1871.625	1871.625	2....	H1-1b
6	V6	PIPE_1.0	.089	3.25	44	.019	3.25		20	9515.739	14773.5	464.625	464.625	1....	H1-1b*
7	V4	PIPE_1.0	.148	3.25	78	.017	0		20	9515.739	14773.5	464.625	464.625	1....	H1-1b*
8	V2	PIPE_2.0	.023	3.25	79	.017	0		20	28308.088	32130	1871.625	1871.625	1....	H1-1b*
9	D3	PIPE_1.0	.108	2.023	49	.032	4.046		33	7471.247	14773.5	464.625	464.625	1....	H1-1b
10	D4	PIPE_1.0	.079	2.026	49	.043	0		18	7456.234	14773.5	464.625	464.625	1....	H1-1b
11	MP1	PIPE_2.0	.237	2.18	126	.050	5.328		26	15637.171	32130	1871.625	1871.625	3	H1-1b
12	MP2	PIPE_2.0	.197	2.18	20	.065	2.18		21	15637.171	32130	1871.625	1871.625	3	H1-1b
13	SA1	PIPE_2.0	.329	.625	39	.097	0		115	20866.733	32130	1871.625	1871.625	2....	H1-1b
14	SA2	PIPE_2.0	.353	.688	49	.109	5.5		23	20866.733	32130	1871.625	1871.625	2....	H1-1b
15	V5	PIPE_1.0	.110	3.25	36	.025	0		21	9515.739	14773.5	464.625	464.625	1....	H1-1b*
16	V3	PIPE_1.0	.185	3.25	36	.018	0		20	9515.739	14773.5	464.625	464.625	1....	H1-1b*
17	V1	PIPE_2.0	.692	2.505	21	.182	2.505		29	28308.088	32130	1871.625	1871.625	3	H1-1b
18	D2	PIPE_1.0	.127	2.023	35	.023	0		19	7471.247	14773.5	464.625	464.625	1....	H1-1b
19	D1	PIPE_1.0	.095	2.026	35	.031	4.052		33	7456.234	14773.5	464.625	464.625	1....	H1-1b
20	MP3	PIPE_2.0	.410	5.409	26	.051	5.409		26	15637.171	32130	1871.625	1871.625	3	H1-1b
21	K1	PIPE_4.0	.026	5	5	.024	0		21	86073.938	93240	10631.25	10631.25	1....	H1-1b*